•		
*	(TM)	•
***	' <u>-</u>	

: : : : :		*****
	 >> 	•
[t t t t	1======	****

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

n.a. - n.a. database search, using Smith-Waterman algorithm with gap extension penalties as well as gap opening penalties MPsrch_nna

Fri Dec 25 06:17:41 1998; MasPar time 326.16 Seconds 543.181 Million cell updates/sec Run on:

Tabular output not generated.

>US-08-951-733-19 (1-3798) from US08951733.seq 3798

Description: Perfect Score: N.A. Sequence:

TABLE default Gap open 30; Gap extend 1 Scoring table:

Dbase 0; Query 0 Nmatch STD: 88822 seqs, 23323279 bases x

Searched:

Post-processing:

Minimum Match 0% Listing first 45 summaries

Database:

Mean 9.574; Variance 5.701; scale 1.679 n-issued 1:5_COMB 2:PCT9_COMB 3:backfiles1

Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Pred. No.	1.46e-25	1.85e-14	7.21e-06	2.06e-06	2.91e-01	2.91e-01	2.91e-01	9.62e-02	2.91e-01	9.62e-02	9.62e-02	2.91e-01	2.91e-01	9.62e-02	2.91e-01	9.62e-02	9.62e-02	9.62e-02	9.62e-02
	Applicati	Applicati	Applicatio	Applicatio	Applicat	, Applicat	, Applicat	Applicati	Applicat	, Applicat	Applicati								
ion	14,	14,	'n	Ŋ,	144	243	142	94,	100	100	94,	66	99,		98,	98,	92,	97,	97,
Description	Sequence																		
Ð	US-08-232-	US-08-232-	US-08-238-	US-08-238-	US-08-471-	US-07-977-	US-08-471-	PCT-US95-1											
DB	-	П	-	Н	-	Н	П	~	7	~	7	7	~	~	~	7	~	~	7
Length DB	7218	7218	215	215	99	89	69	74	74	74	74	75	75	81	81	81	81	82	82
Query Match	1.8	1.3	6.0	6.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Score	67	49	34	35	25	25	25	56	25	56	56	25	25	56	25	56	26	56	56
ult No.	н	~	m	4	ß	9	7	œ	6	10	11	12	13	14	15	16	11	18	19
Result No.		U		υ						U	υ		ပ			υ	υ		Ü

TELEX: 899149 INFORMATION FOR SEQ ID NO: 14:

נטיטנט נ	2.91e-01	2.91e-01	2.91e-01	2.49e+00	8.62e-01	8.62e-01	8.62e-01	2.49e+00	8.62e-01	8.62e-01	2.49e+00	2.49e+00	2.49e+00	2.49e+00	2.49e+00	2.49e+00	2.49e+00	8.62e-01	2.49e+00	2.49e+00	2.49e+00	2.49e+00	8.62e-01	2.49e+00	2.49e+00
7 1 200	Sequence 7, Application	7	'n	145	145,	93, A	144,	143,	143,	142,	25,	25,	23, A	120,	2, A	18,	Sequence 15, Applicati	H		Sequence 11, Applicati	Sequence 11, Applicati	Patent No. 5457037.	Sequence 1, Applicatio	Patent No. 5457037.	Ş V
222-00-27	0	PCT-US95-0	PCT-US93-0 8	US-08-471-	US-08-471-	PCT-US95-1	US-08-471-	7-	US-08-471-	US-08-471-	US-08-300-	PCT-US94-0	US-08-209-		,	US-08-299-	- 2		5480796-8	US-07-807-	3-299-	5457037-2	72-	5457037-4	5457037-1
-	4 (7	7	~	Н	-	~	٦	7	н	Н	Ч	~	Н	П	Н	Н	Н	Н	٣	Н	Н	m	-	m	ო
24.2	1004	1386	1611	65	65	99	99	68	68	69	84	84	84	84	108	225	225	242	1404	1640	1640	2253	2454	2625	3336
	0.7	0.7	0.7	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
20	25	52	25	23	24	24	24	23	24	24	23	23	23	23	23	23	23	24	23	23	23	53	24	23	23
20	212	22	53	24	52	26	27	28	53	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
	O	ပ	U		O	ပ	O		U	ပ								O				O		ပ	ပ

ALIGNMENTS

```
Sequence 14, Application US/08232463
Sequence 14, Application US/08232463
Sequence 14, Application US/08232463
Sequence 14, Application US/08232463
CGENERAL INFORMATION:
APPLICANT: SCHEIFINGER, F.
APPLICANT: SCHEIFINGER, F.
APPLICANT: FALKNER, F. G.
TITLE OF INVENTION: RECOMBINANT FOWLPOX VIRUS
NUMBER OF SEQUENCES: 52
CORRESPONDENCE ADDRESS:
ADDRESSE: FOLGY & Lardner
STREET: 1800 Diagonal Road, Suite 500
CINTRY: USA
STATE: WA
COUNTRY: USA
ZIATE: WA
COUNTRY: USA
ZIATE: WA
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTAM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CUASSIFICATION NUMBER: US/08/232,463
FILING APPLICATION NUMBER: US/08/3333
RILING DATE:
CLASSIFICATION NUMBER: US/07/935,313
                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE:
APPLICATION NUMBER: EP 91 114 300.6
FILING DATE: 26-A0G-1991
ATTORNEY/AGENT INFORMATION:
NAME: BENT, Stephen A.
REGISTRATION NUMBER: 29,768
REFERENCE/DOCKET NUMBER: 30472/114 IMMU
TELECOMMUNICATION INFORMATION:
TELEPHONE: (703)836-9300
          US-08-232-463-14 STANDARD; DNA; UNC; 7218 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (703)683-4109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX:
RESULT
```

```
COMPUTER: IBM PC OPERATING SYSTEM: SOFTWARE: Patenti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        94105-1493
                                                                                                                                                             IMMEDIATE SOURCE:
  FILING DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY:
                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                            윱
                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                          셤
  555555555555555555555
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                       982 GGGCCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTCCCCCGGTGTA 1041
                                                                                                                                                                                                                 1042 GGCGGAGACCAAGCACTTCCTCTACTCCTCAGGGGACAAGGAGCAGCTGCGGCCCTCCTT 1101
                                                                                                                                                                                                                                                    1102 CCTACTCAGGCTCTCTGAGGCCCGAGCCTGGCGCTCGGAGGCTCGTGGAGGCTCTT 1161
                                                                                                                                                                                                                                                                          1222 CTACTGGCAAATGCGGCCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCAGTGCCCCTA 1281
                                                                                                                                                                                                Gaps
                                                                                                       ö
                                                       CLONE: pTZgpt-Fls
SEQUENCE 7218 BP; 1944 A; 1491 C; 1486 G; 1929 T; 368 OTHER.
                                                                                  Query Match 1.8%; Score 67; DB 1; Length 7218; Best Local Similarity 2.4%; Pred. No. 1.46e-25; Matches 9; Conservative 211; Mismatches 153; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: Patentin Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/232,463
                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
APPLICANT: DORNER, F.
APPLICANT: SCHEIFLINGER, F.
APPLICANT: FALKNER, F. G.
TITLE OF INVENTION: RECOMBINANT FOMLPOX VIRUS
NUMBER OF SEQUENCES: 52
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                 .T 2
US-08-232-463-14 STANDARD; DNA; UNC; 7218 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE: Foley & Lardner
STREET: 1800 Diagonal Road, Suite 500
CITY: Alexandria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/07/935,313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY: USA
ZIP: 22313-0299
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 14, Application US/08232463
Sequence 14, Application US/08232463
Patent No. 5670367
SEQUENCE CHARACTERISTICS:
LENGTH: 7218 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                    1415 YYYYYYYYYYY 1427
                                                                                                                                                                                                                                                                                                                                                                      1282 CGGGGTGCTCCTC 1294
                                      linear
                                              IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE:
                                     TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STATE:
                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                     XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                   g
888888888
                                                                                                                                                                                                硆
                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                              ò
```

```
APPLICANT: BENNETT, Alan
APPLICANT: LABAVITCH, John M.
APPLICANT: LABAVITCH, John M.
APPLICANT: POWELL, Ann
APPLICANT: STOTE, Hearlik
TITLE OF INVENTION: PLANT INHIBITORS OF FUNGAL
TITLE OF INVENTION: POLYGALACTURONASES AND THEIR USE TO CONTROL FUNGAL DISEA
NUMBER OF SEQUENCES: 24
CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend Khourie and Crew
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1900 TICCCGATGCTGCCTGACCTCTGCGACAGCTCCCGCAGCTGCACCTCTTGAAGTG 1841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1080 CCGCCCCCCCCTAGTTGAGCACGCTGAACAGTGCCTTCACCCTCGAGGTGAGACGCTC 2021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2020 GCCCCTCTTTTCTCTGCGGAACGTTCTGGCTCCCACGACGTAGTCCATGTTCACAATCGG 1961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1960 CCGCAGCCCGTCAGGCTTGGGGATGAAGCGGAGTCTGGACGTCAGCAGGCCGGGCCTGGC 1901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1840 CIGICIGATICCAAIGCITIGCAACIIGCICCAGACACTICTICCGGIAGAAAA 1788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                           CLONE: pTZgpt-F1s
SEQUENCE 7218 BP; 1944 A; 1491 C; 1486 G; 1929 T; 368 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Match 1.3%; Score 49; DB 1; Length 7218; Local Similarity 2.0%; Pred. No. 1.85e-14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    165; Mismatches 122; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE: Townsend and Townsend Khourie and Crew STREET: Steuart Street Tower, One Market Plaza CITY: San Francisco STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SYSTEM: PC-DOS/MS-DOS
PatentIn Release #1.0, Version #1.25
                                                                                       39,768
PER: 30472/114 IMMU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-238-163-5 STANDARD; DNA; UNC; 215 BP
APPLICATION NUMBER: EP 91 114.300.6 FILING DATE: 26-AUG-1991 ATTONEY/AGENT INFORMATION: REGISTRATION NUMBER: 29,768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 5, Application US/08238163
Sequence 5, Application US/08238163
Patent No. 5569830
GENERAL INFORMATION:
                                                                                                                                                                                                 TELEFAX: (703)663-4109
TELEX: 899149
INFORMATION FOR SEQ ID NO: 14:
SEQUENCE CHARACTERISTICS:
LENGTH: 7218 base pairs
TYPE: nucleat acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                                                                                      REFERENCE/DOCKET NUMBER: 3
TELECOMMUNICATION INFORMATION
TELEPHONE: (703)836-9300
TELEFAX: (703)683-4109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6; Conservative
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               126 AMTSRNRTGKTANNAVDSRNMGDASVGSDKNTKKHAKNSADGKVGSKNNGDRNNRYGTGT 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6 MSSSSVVSRTASCNDKAKKDGNTTSSWTTDCCNRTWGVCDTDTTYRVNNDSGHNKYSSAN 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: misc_feature
LOCATION: 1..215
OTHER INFORMATION: /standard_name= "Deduced amino acid
OTHER INFORMATION: sequence of PGIP from bean."
SEQUENCE 215 BP; 15 A: 8 C; 25 G; 26 T; 141 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 144, Application US/08471052A
Sequence 144, Application US/08471052A
Patent No. 3625033
GENERAL INFORMATION:
APPLICANT: Kay, B. K.
APPLICANT: FOWLKes, D. M.
TITLE OF INVENTION: Totally Synthetic Affinity Reagents
NUMBER OF SEQUENCES: 166
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STATE: New .c...

COUNTRY: U.5.A.

2.IP: 10036-2711

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IEM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/471,052A
FILING DATE: 06-JUNE-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 35; DB 1; Length 215;
Pred. No. 2.06e-06;
76; Mismatches 95; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 л 5
US-08-471-052A-144 STANDARD; DNA; UNC; 66 BP.
                REGISTRATION NUMBER: 34,774
REGISTRATION NUMBER: 34,774
REPERENCE/POCKET NUMBER: 2307E-540
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 543-5600
INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
LENGTH: 215 base pairs
TYPE: nulleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTORNEY/AGENT INFORMATION:
NAME: Misrock, S. Leslie
REGISTRATION NUMBER: 18,872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE: Pennie & Edmonds
  ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1436 TGCTGTGCTGGCGGAGC 1420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 0.9%;
Best Local Similarity 13.2%;
Matches 26; Conservative
                                                                                                                                                                                                                                                                                                     single
                                                                                                                                                                                                                                                                                                                                               MOLECULE TYPE: protein FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    186 KSNVSNNCGGGNKRDVS 202
                                                                                                                                                                                                                                                                                                                         unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STREET: 1155 AV CITY: New York STATE: New YOR!
                                                                                                                                                                                                                                                                                          STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Сp
     ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 5, Application US/08238163
Sequence 5, Application US/08238163
Sequence 5, Application US/08238163
Patent No. 5569830
GENERAL INFORMATION:
APPLICANT: BENNETT, Alan
APPLICANT: DOWELL, Ann
APPLICANT: STOTZ, Henrik
TITLE OF INVENTION: PLANT INHIBITORS OF FUNGAL
TITLE OF INVENTION: POLYGALACTURONASES AND THEIR USE TO CONTROL FUNGAL DISEASE
NUMBER OF SEQUENCES: 24
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               83 HTNVSGADSKTVTDSYNASGTSSSNGGTDGNRSGADSYGSSKTAMTSRNRTGKTANNAVD 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                :| ::| ::: : :: : :: | :| :| :| :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     143 SRNMGDASVGSDKNTKKHAKNSADGKVGSKNNGDRNNRYGTGTKSNVSNNCGGGNKRDVS 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY: misc_feature
LOCATION: 1..215
OTHER INFORMATION: /standard_name= "Deduced amino acid
OTHER INFORMATION: sequence of PGIP from bean."
SEQUENCE 215 BP; 15 A; 8 C; 25 G; 26 T; 141 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             56; Mismatches 59; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 34; DB 1; Length 215, Pred. No. 7.21e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE: Townsend and Townsend Khourie and Crew STREET: Steuart Street Tower, One Market Plaza
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READBLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                   APPLICATION NUMBER: US/08/238,163
FILING DATE: 03-MAY-1994
CLASSIFICATION: 800
ATTORNEY/AGENT INFORMATION:
NAME: Bastian, Kevin L.
REGISTRATION NUMBER: 34,774
REFERENCE/DOCKET NUMBER: 2307E-540
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELEFAX: (415) 543-5603
TELEFAX: (415) 543-5603
INFORMATION FOR SEQ ID NO: 5: SEQUENCE CHARACTERISTICS:
LENGTH: 215 base pairs
TYPE: nucleic acid
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-238-163-5 STANDARD; DNA; UNC; 215 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US/08/238,163
FILING DATE: 03-MAY-1994
CLASSIFICATION: 800
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity 12.9%;
Matches 17; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: unknown
MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ::| :||::|
251 GCACGCCGCC 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                94105-1493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               203 SYANNKCCGSSC 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ns
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
```

g

셤 ò

```
LENGTH: 68
TYPE: NUCLEIC ACID
STRANDEDNESS: SINCLE
TOPOLOGY: LINEAR
ANTI-SENSE: NO
SEQUENCE 68 BP; 7 A; 38 C; 17 G; 6 T; 0 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 69 bases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ||
|1493 GG 1494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              67 GG 68
                                                                                                                                                                                                                                         XXXXXX
                                                                                                                                                                                                             RESULT
     8888888
                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
ADDRESSEE: Woodcock, Washburn, Kurtz, Mackiewicz & No. 5558988ris
STREET: One Liberty Place, 46th floor
CITY: Philadelphia
                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Prockop, Darwin J.
APPLICANT: Ala-Kokko, Leena
APPLICANT: Williams, Charlene J.
APPLICANT: Ritvaniemi, Perti
APPLICANT: Ritvaniemi, Perti
APPLICANT: Hopkinson, Ian
APPLICANT: Ahmad, Nilofer Nina
IIILE OF INVENTION: METHODS OF DETECTING A GENETIC
TITLE OF INVENTION: PREDISPOSITION FOR OSTEOARTHRITIS
NUMBER OF SEQUENCES: 261
                                                                                                                                                                                 / Match 0.7%; Score 25; DB 1; Length 66; Local Similarity 11.3%; Pred. No. 2.91e-01; nes 7; Conservative 18; Mismatches 37; Indels
                                                                                                                                                                                                                                                                                                                                                    .r 6
US-07-977-284A-243 STANDARD; DNA; UNC; 68 BP.
                                                                                                                              TOPOLOGY: unknown
MOLECULE TYPE: DNA
SEQUENCE 66 BP; 2 A; 3 C; 4 G; 2 T; 55 OTHER.
REFERENCE/DOCKET NUMBER: 1101-179
TELECOMMUNICATION INFORMATION:
TELEPHONE: 212 790-9090
TELEFAX: 212 869-8864/9741
TELEX: 66441 PENNIE
INFORMATION FOR SEQ ID NO: 144:
SEQUENCE CHARACTERISTICS:
LENGTH: 66 bases
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 13-NOV-1992
CLASSIFICATION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDIUM TYPE: Floppy disk COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: WordPerfect 5.1 CURRENT APPLICATION DATA: APPLICATION NUMBER: US/07/977.284A FILLIAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TJU-0697
                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 243, Application US/07977284A Sequence 243, Application US/07977284A Patent No. 5558988 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE:
FILING DATE:
ATTORNEY/AGENT INFORMATION:
RAGISTRATION NUMBER: 33,229
REFERENCE/DOCKET NUMBER: TJU-(
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEPHONE: (215) 568-3100
TELEFAX: (215) 568-3439
INFORMATION FOR SEQ ID NO: 243:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ZIP: 19103
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
                                                                                                                                                                                                                                                                                                              1493 GG 1494
                                                                                                                                                                                                                                                                                     64 GG 65
                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                              XXXXXX
                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                   g
     8888888888888888
                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                              ò
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Gaps
                                                                                                                                                                                                                                                                               Sequence 142, Application US/08471052A

Sequence 142, Application US/08471052A

C Patent No. 5625033
C GENERAL INFORMATION:
C APPLICANT: Kay, B. K.
APPLICANT: Fowlkes, D. M.
TITLE OF INVENTION: Totally Synthetic Affinity Reagents
NUMBER OF SEQUENCES:
CORRESPONDENCE ADDRESSE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
                                               ö
                                                                                                                   254 CGGCCGCCCCCCCCCCTTCCGCCAGGTGTCCTGCCTGAAGG 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 0.7%; Score 25; DB 1; Length 69; Best Local Similarity 11.3%; Pred. No. 2.91e-01; Matches 7; Conservative 18; Mismatches 37; Indels
                                                                                            0; Mismatches 12; Indels
  Length 68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
STREET: 1155 Avenue of the Americas
STATE: New York
STATE: New York
COUNTR: U.S.A.
ZIP: 10036-2711
COMPUTER READABLE FORM:
MEDIOW TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
RILING DATE: 06-JUNE-1995
CLASSIFICATION: 530
Score 25; DB 1; L4
Pred. No. 2.91e-01;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY: unknown
MOLECULE TYPE: DNA
SEQUENCE 69 BP; 2 A; 4 C; 6 G; 2 T; 55 OTHER.
                                                                                                                                                                                                                             US-08-471-052A-142 STANDARD; DNA; UNC; 69 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE/DOCKET NUMBER: 1101-179
TELECOMMUNICATION INFORMATION:
TELEPHONE: 212 790-9090
TELEFAX: 212 869-8864/9741
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 142:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18,872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 06-JUNE-1995
CLASSIFICATION: 530
ATTORNEY/AGENT INFORMATION:
NAME: Mistock, S. Leslie
REGISTRATION NUMBER: 18,8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
Query Match 0.7%;
Best Local Similarity 75.5%;
Matches 37; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: unknown
```

```
New York
                     10036
                                                                                                                                                                                                                                                                                                                                                                                                                                             1006 ACCAC 1010
                                                                                                                                                                                                                                                                                                                                                                                                                        66 ACCAC 70
           COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              윱
                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2449 GAGCICCICCICAATGAGGCCAGCAGIGGCCICTICGACGICIICCIACGCIICAIGIG 2508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Gaps
                                                 Sequence 94, Application PC/TUS9511934
C GENERAL INFORMATION:
C TITLE OF INVENTION:
C TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From TITLE OF INVENTION: Peptide Libraries NUMBER OF SEQUENCES: 103
C CORRESPONDENCE ADDRESS:
ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
C CITY: New York
C CITY: New York
C COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 100, Application PC/TUS9511934
Sequence 100, Application PC/TUS9511934
GENERAL INFORMATION:
APPLICANT: Cytogen Corporation
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From
TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES: 103
CORRESPONDENCE ADDRESS:
ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ouery Match 0.7%; Score 26; DB 2; Length 74; Best Local Similarity 11.4%; Pred. No. 9.62e-02; Matches 8; Conservative 19; Mismatches 43; Indels
                                                                                                                                                                                                ZIP: 10036
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/11934
FILING DATE: 20-SEP-1995
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
SEQUENCE 74 BP; 3 A; 4 C; 3 G; 1 T; 63 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7T 9
PCT-US95-11934-100 STANDARD; DNA; UNC; 74 BP.
                  PCT-US95-11934-94 STANDARD; DNA; UNC; 74 BP.
                                                                                                                                                                                                                                                                                                                                                      1101-196-228
                                                                                                                                                                                                                                                                                                                                                                         TELEPHONE: (212) 790-9090
TELEFAX: (212) 869-9741/8864
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 94:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                 ATTORNEY/AGENT INFORMATION:
NAME: Misrock, S. Leslie
REGISTRATION NUMBER: 18,872
REFERENCE/DOCKET NUMBER: 110
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH: 74 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2509 CCACCACGCC 2518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          63 BNNBNACGCC 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       XXXXXX
                               XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
         RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           946 CCACTCCCACCCATCCGTGGGCCGCCAGCACCACGGGCCCCCCCATCCACATCGCGGCC 1005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 100, Application PC/TUS9511934
Sequence 100, Application PC/TUS9511934
GENERAL INFORMATION:
APPLICANT: Cytogen Corporation
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES:
CORRESPONDENCE ADDRESS:
ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 25; DB 2; Length 74;
Pred. No. 2.91e-01;
20; Mismatches 40; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CITY: New York
CITY: New York
COUNTRY: USA
ZIP: 1036
COMPUTER READABLE FORM:
MEDIUM TIPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CUBRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/11934
FILING DATE: 20-SEP-1995
                                                                                           CURRENT APPLICATION DATA:
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/11934
FILING DATE: 20-SEP-1995
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Misrock, S. Leslie
REGISTRATION NUMBER: 18,872
REGISTRATION NUMBER: 18,872
REFRENCE/POCKET UNMER: 1101-196-228
TELEPHONE: (212) 790-9090
TELEPAS: (212) 790-9090
TELEFAX: (212) 790-9090
TELEFAX: (212) 790-9010
TELEFAX: (212) 869-9741/8864
TELER: (212) 869-9741/8864
TELER: (212) 869-9741/8864
TELER: INCORMATION FOR SEQ ID NO: 100:
SEQUENCE CHARACTERISTICS:
LENGTH: 74 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MOLECULE TYPE: DNA (genomic)
SEQUENCE 74 BP; 6 A; 6 C; 1 G; 1 T; 60 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Misrock, S. Leslie
REGISTRATION NUMBER: 18,872
REFERENCE/DOCKET NUMBER: 1101-196-228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JT 10
PCT-US95-11934-100 STANDARD; DNA; UNC; 74
                                                                               PC-DOS/MS-DOS
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 0.7%;
Best Local Similarity 7.7%;
Matches 5; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
```

```
STATE: New York COUNTRY: USA
                                                                   481 cccccaccc 472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       228 GCCTGGTGTG 237
                                                  63 BNNBNACGCC 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     64 NNBGGTTGTG 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence Sequence 9
                                                                                                                         XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                     RESULT
                                                   셤
                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CERRI
                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                         542 AGAGCGCGCAGCGTGCCAGCAGCTGAACCAGCACGTCGTCGCCCACGCGGCGCAGCAGCA 483
                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                      Sequence 94, Application PC/TUS9511934
Sequence 94, Application PC/TUS9511934
GENERAL INFORMATION:
APPLICANT: Cytogen Corporation
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From
TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES: 103
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                              0.7%; Score 26; DB 2; Length 74;
10.3%; Pred. No. 9.62e-02;
ttive 20; Mismatches 41; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 26; DB 2; Length 74;
Pred. No. 9.62e-02;
19; Mismatches 43; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/11934 FILING DATE: 20-SEP-1995
                                                                                       TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
SEQUENCE 74 BP: 6 A: 6 C: 1 G: 1 T: 60 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MOLECULE TYPE: DNA (genomic)
SEQUENCE 74 BP; 3 A; 4 C; 3 G; 1 T; 63 OTHER.
                                                                                                                                                                                                                                                                JT 11
PCT-US95-11934-94 STANDARD; DNA; UNC; 74 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1101-196-228
                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  омыев: PCT/US95/11934
20-SEP-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTORNEY/AGENT INFORMATION:
NAME: Misrock, S. Leslie
REGISTRATION NUMBER: 18,872
REFERENCE/DOCKET NUMBER: 1101
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 869-9741/8864
         TELEPHONE: (212) 790-9090
TELEFAX: (212) 869-9741/8864
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 100:
SEQUENCE CHARACTERISTICS:
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 94:
SEQUENCE CHARACTERISTICS:
                                                          LENGTH: 74 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 74 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 0.7%;
Best Local Similarity 11.4%;
Matches 8; Conservative
                                                                                                                                         Best Local Similarity 10.3%;
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                     New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                             USA
                                                                                                                                                                                                                                                                                                                                                                                                                    STATE: New COUNTRY: US
                                                                                                                                                                                                                                   482 GCCCCCAC 475
                                                                                                                                                                                                              63 VNNACCAC 70
                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                      XXXXXX
                                                                                                                                                                                                                                                                RESULT
8888888888888
                                                                                                                                                                                                              g
                                                                                                                                                                                                                                   S
```

```
ö
541 GAGCGCGCGAGCGAGCAGCAGCTGAACCAGCACGTCGCCCCACGCGGCGCAGCAGCAG 482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  168 AGGGCTGGCGGCTGCTGCAGCGCGGGGACCCGGCGCTTTCCGCGCGCTGGTGGCCCAGT 227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Gaps
                                                                                                                                                                                                                                                                     Sequence 99, Application PC/TUS9511934
Sequence 99, Application PC/TUS9511934
GENERAL INFORMATION:
APPLICANT: Cytogen Corporation
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From
TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES: 103
CORRESPONDENCES: 103
CORRESPONDENCES: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 25; DB 2; Length 75;
Pred. No. 2.91e-01;
20; Mismatches 43; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATE: PCT/US95/11934 PILING DATE: 20-SEP-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY: linear MOLECULE TYPE: DNA (genomic) SEQUENCE 75 BP; 1 A; 1 C; 7 G; 5 T; 61 OTHER.
                                                                                                                                                                              /T 12
PCT-US95-11934-99 STANDARD; DNA; UNC; 75 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7T 13
PCT-US95-11934-99 STANDARD; DNA; UNC; 75 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ZIP: 10036
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Palcal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99, Application PC/TUS9511934 99, Application PC/TUS9511934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PILING DATE: 20.SEP-1995
CLASSIFICATION:
ATTORNEY/FAGENT INFORMATION:
NAME: Misrock, S. Leslie
REGISTRATION NUMBER: 18,872
REFERENCE/DOCKET NUMBER: 1101-1
TELEPHONE: (212) 790-9090
TELEPKX: (212) 790-9090
TELEFXX: (212) 869-9741/8864
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 99:
SEQUENCE CHARACTERS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 75 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 0.7%;
Best Local Similarity 10.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7; Conservative
```

```
2449 GAGCTCCTCCCTGAATGAGGCCAGCAGTCTTCGACGTCTTCCTACGCTTCATGTG 2508
                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION:
TITLE OF INVENTION:
Antigen Binding Peptides (Abtides) From TITLE OF INVENTION: Peptide Libraries
TITLE OF INVENTION: Peptide Libraries
TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES:
ADDRESSE:
ADDRESSE:
STREET: 1155 Avenue of the Americas
CITY: New York
COUNTRY: USA
ZIP: New York
COUNTRY: USA
ZIP: 1036
COMPUTER: Floppy disk
COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatchIIN Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
FILING DATE: PC-1995
FILING DATE: PC-1995
                                                                                                                                                                                                                                                                                                                                                                                                    19; Mismatches 43; Indels
                                                                                                                                                                                                                                                                                                                                                                  Length 81;
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/11934
FILING DATE: 20-SEP-1995
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                  Score 26; DB 2; Lo
Pred. No. 9.62e-02;
                                                                             ATTORNEY AGENT INFORMATION:
NAME: MISTOCK, S. Leslie
REGISTRATION NUMBER: 1101-196-228
REFERENCE/DOCKET NUMBER: 1101-196-228
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
TELERA: (212) 869-9741/8864
INFORMATION FOR SEQ ID NO: 92:
SEQUENCE CHARACTERISTICS:
LENGTH: 81 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE: DNA (genomic)
SEQUENCE 81 BP: 3 A; 5 C; 6 G; 4 T; 63 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JT 15
PCT-US95-11934-98 STANDARD; DNA; UNC; 81 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1101-196-228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 98, Application PC/TUS9511934 Sequence 98, Application PC/TUS9511934 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE/DOCKET NUMBER: 1101-
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
TELEFAX: (212) 869-9741/8864
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 98:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Misrock, S. Leslie
REGISTRATION NUMBER: 18,872
                                                                                                                                                                                                                                                                                                                                                                Query Match 0.7%;
Best Local Similarity 11.4%;
Matches 8; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          81 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        : : ||||||
2509 CCACCACGCC 2518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    70 BNNBNACGCC 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGIH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <del>a</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ő
   0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 92, Application PC/TUS9511934

C Sequence 92, Application PC/TUS9511934

C BENERAL INFORMATION:

APPLICANT: Cytogen Corporation

TITLE OF INVENTION: Peptide Libraries

UNMBER OF SEQUENCES: 103

CORRESPONDENCE ADDRESS:

ADDRESSEE: Pennie & Edmonds

STREET: 1155 Avenue of the Americas

C CITY: New York

C COUNTRY: USA
               APPLICANT: Cytogen Corporation
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From
TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES: 103
CORRESPONDENCE ADDRESSS:
ADDRESSE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
CITY: New York
STATE: New York
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 25; DB 2; Length 75;
Pred. No. 2.91e-01;
20; Mismatches 43; Indels
                                                                                                                                                             COUNTRIES 2005

ZIP: 10036

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30

CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/11934

TITING DATE: 20-SEP-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY: linear MOLECULE TYPE: DNA (genomic) SEQUENCE 75 BP; 1 A; 1 C; 7 G; 5 T; 61 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /T 14
PCT-US95-11934-92 STANDARD; DNA; UNC; 81 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER: IBM PC COMPATIBLE OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                              TELEPHONE: (212) 790-9090
TELEFAX: (212) 869-9741/8864
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 99:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IBM PC compatible
                                                                                                                                                                                                                                                                                                                                             ATTORNEY/AGENT INFORMATION:
NAME: Misrock, S. Leslie
REGISTRATION NUMBER: 18,872
REFERENCE/DOCKET NUMBER: 110
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 75 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 0.7%;
Best Local Similarity 10.0%;
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: nucleic acid
STRANDEDNESS: single
 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                261 GGCGGCCGTG 252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               64 NNBGGTTGTG 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY: U
```

XXXXXX

RESULT

S

셤

ö

0; Gaps

```
CC TYPE: nucleic acid
CC STRANDEDNESS: single
CC TOPOLOGY: linear
CC MOLECULE TYPE: DNA (genomic)
SQ SEQUENCE 81 BP; 6 A; 6 C; 4 G; 5 T; 60 OTHER.

Query Match
Query Match
Best Local Similarity 7.7%; Pred. No. 2.91e-01;
Matches 5; Conservative 20; Mismatches 40; Indels 0; Gaps
```

Search completed: Fri Dec 25 06:26:06 1998 Job time : 505 secs.

*****	(TM)	****
****	; <u></u>	********
*****		********
******		********
****		********
*******		*********
在建筑的建筑,在建设的设备,是是建筑的设备,是是建筑的设备,是是建筑的设备,是是建筑的设备,是有的现在分词,是是有的的现在分词,是是有的的的的。 医多种性神经炎 医多种种种种种种种种种种种种种种种种种种种种种种种种种种种种种种种种种种种种		***************************************
* * *		***

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm MPsrch_pp

Thu Dec 24 07:42:45 1998; MasPar time 55.38 Seconds 780.716 Million cell updates/sec Run on:

Tabular output not generated.

>US-08-951-733-20 (1-1154) from US08951733.pep 8624 1 HASGORCVLLRTWEALAPAT.....TALEAAANPALPSDFKTILD 1154 Title: Description: Perfect Score: Sequence:

Scoring table:

116738 segs, 37463448 residues Searched:

Minimum Match 0% Listing first 45 summaries Post-processing:

pir58 1:pir1 2:pir2 3:pir3 4:pir4 Database:

Mean 54.465; Variance 114.185; scale 0.477 Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

Pred. No.	1.90e-31 4.72e-07 8.51e-06 1.59e-03 3.53e-04	1.59e-03 1.18e-03 1.24e-02 6.92e-03	1.24e-02 5.17e-03 2.19e-02 5.17e-03 6.92e-03	3.53e-01 3.87e-02 6.79e-02 6.79e-02 2.69e-01
Description	telomerase catalytic BHLF1 protein - human virion protein homolo proline-rich protein hypothetical protein allyary oroline-rich	homeotic protein - hu hypothetical protein, ORF4 protein - Orf vi proline-rich protein	proline-rich protein proline-rich protein testis-specific prote gene LF3 protein - hu hypothetical 119.5k p	proline-rich protein proline-rich protein proline-rich protein tumor-associated anti nodulation protein no epithelial tumor anti
SUMMARIES	S53396 QQBE3 JC1306 B24264 B38965	S16681 S01955 D34768 S19560	S10889 A28996 S22933 S27923 JQ0405	A39066 C29149 A24264 A60533 S00054 S10571
DB	44444	100000	000000	000000
% Query Match Length DB	884 560 504 240 276	316 628 300 300	309 317 566 924 1106 1236	204 227 240 256 322 347
% Query Match				
Score	314 153 141 142	136 137 129 131	129 127 132 131 130	117 125 123 123 118
Result No.	H 4 W 4 W 6	7. 88 110 111	12 13 14 15 17	18 20 22 23

501 QIADRI-KEFKQRLLKKFNNVLPELYFMKFDVKSCYDSIPRMECMR-ILKDALKNENGFF 558

q &

1.4 358 1 WMBE38 infected cell protein 1.18e-01 1.4 402 2 A45056 osteogenic protein 2 387e-02 1.4 402 2 S5796 prpL2 protein - human 6.79e-02 1.4 431 2 509824 hypothetical protein 2 59e-02 1.4 439 2 551939 chitimase (EC 3.2.1.1 6 79e-02 1.4 436 2 525697 extensin - Volvox car 5.13e-02 1.3 202 2 B36795 epithelial tumor anti 2 05e-01 1.3 202 2 B36795 proline-rich protein 7 86e-01 1.3 202 2 B48013 proline-rich protein 7 86e-01 1.3 295 2 B48013 proline-rich protein 7 86e-01 1.3 295 2 B48013 proline-rich protein 7 86e-01 1.3 371 2 E29149 proline-rich protein 0 7 86e-01 1.3 372 2 S54545 hypothetical protein 7 86e-01 1.3 372 2 S54545 salivary proline-rich 6 03e-01 1.3 408 2 A56186 cyclin E - African cl 7.86e-01 1.3 704 2 A3041 synapsin Is - Tat 1.02e+00 1.3 1255 2 B35175 episialin B - human 1.02e+00 1.3 1255 2 B35175 BPLFI protein - human 6 03e-01	S53396 #type complete telomerase catalytic chain EST2 - yeast (Saccharomyces carevisiae) ES protein L8543.12; protein YLR318w #formal_name Saccharomyces cerevisiae 05-May-1995 #sequence_revision 01-Sep-1995 #text_change 13-Sep-1998 S53396 bu, Z. n submitted to the EMBL Data Library, February 1995 S53396 on The sequence of S. cerevisiae cosmid 8543. S53396 ule_type DNA ues 1-884 ##label DUZ references EMBL:120618; NID:92258165; PID:9662136; MIPS:YLR318w imental_source strain S288C (AB972) SGD EST2 -references SGD:S0004310; MIPS:YLR318w ion 12R	th 884 #molecular-weight 102662 #checksum 7604 3.6%; Score 314; DB 2; Length 884; y 24.3%; Pred. No. 1.90e-31; ervative 122; Mismatches 202; Indels 44; Gaps	LSHLSRQSPKER-VLKFIIVILQKILPQEMFGSKKNRGKIIKNLNLLLSLPLNGYLPFDS 329
55	1 Sissis Sissis Sissi Sissis Sissi Sissis Sissis Sissis Sissis Sissi Siss	RY ry Match t Local St ches 118	271 LSHLSRQS 470 LVQLLRQH 330 LLKKLRLR 530 LTWKMSVR 388 STVTIVYF ::1 590 FQKNRLFF 444 KSNNEFRI ::1 649 -PDGLRPI
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	RESULT ENTLE TITLE ALTENATE ORGANISM DATE ACCESSION REFERENCE # autho # # submi. # descr # des	SUMMARY Query Best Match	8 8 8 8 8 8 8

Mon Dec

```
#map_position
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##residues
                                                                                                                   ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION
                                                                                  #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #accession
                                 #journal
#title
               #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                          407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
REFERENCE
                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                    GENETICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                      #authors Bankier, A.T.; Deininger, P.L.; Farrell, P.J.; Barrell, B.G.
#journal Mol. Biol. Med. (1983) 1:21-45
#title Sequence analysis of the 17,166 bp EcoRI fragment C of B95-8
Epstein Barr virus.
#cross-references MUID:85035713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Baer, R.; Bankier, A.T.; Biggin, M.D.; Deininger, P.L.;
Farrell, P.J.; Gibson, T.J.; Hatfull, G.; Hudson, G.S.;
Satchwell, S.C.; Seguin, C.; Tuffnell, P.S.; Barrell, B.G.
Nature (1984) 310:207-211
DNA sequence and expression of the B95-8 Epstein-Barr virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 162; DB 1; Length 660;
Pred. No. 4.72e-07;
34; Mismatches 60; Indels 14; Gaps 12;
                                   E----M-EIF-K-T---ALWVEDKCYIREDGLFQGSSLSAPIVDLVYDDLLEFYSEFKAS 658
                                                                                                                                                                        GPPPTRSGAAAQ-RTHRRPPGCPRSARNPGCPRTWRR--R-SGAQRGHPPPGAGQRPSGP 306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     659 PSQDTLILKLADDFLIISTDQQQVINIKKLAMGGFQKYNAKAN-RDKILAVSSQSDDDTV 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 307 TGGRPAAPGAPGTPAAPGPGGGAAVPSGATPHPERGSGPADPP--AAARLPPERQEPRLP 364
                                                                                                                                                                                                                                                                                                                                     BHLF1 protein - human herpesvirus 4 (strain B95-8)
#formal_name human herpesvirus 4, Epstein-Barr virus
25-Feb-1985 #sequence_revision 25-Feb-1985 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JC1306 #type complete
virion protein homolog - bovine herpesvirus 1
alpha TIF; BHV-1 protein homolog; ICP25; Vmw65; VP16
#formal_name bovine herpesvirus 1
05-Mar-1993 #sequence_revision 05-Mar-1993 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #cross-references NUID:84270667
#contents annotation; protein coding region
MENT The sequence contains four perfect repeats (residues 149-273, 274-398, 399-523, and 524-648).

NSSIFICATION #superfamily human herpesvirus 4 BHLE1 protein #length 660 #molecular-weight 66244 #checksum 8900
                                                                                                  VRSQY-FFNTNT-G-VLKLFNV-VNASRVPKPY-ELYIDNVR-TVHLSNQDVIN---VV-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GALSGTRHSHPSVGRQHHAGPPSTSRPPRPWDTPCP 344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   365 QDLAAAQRC-PAGPPTRSGA-AAQRTHR-RPPGCP 397
                                                                                                                                                                                                                                                                                                                       #type complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1-660 ##label BAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity 30.8%; tes 48; Conservation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JC1306; S24229
                                                                                                                                                                                                                                                                                                                                                                                       23-Aug-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21-Aug-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A03794
                                                                                                                                                                                                                                                                                                                                                                                                                        A93065
                                                                                                                                                                                                                718 IQFCAM 723
                                                                                                                                                                                                                                                   939 TAFVOM 944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ALTERNATE NAMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #accession
                                                                                                                                                                                                                                                                                                    ~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #journal
                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSIONS
              559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSIONS
                                                                              609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                    TITLE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUMMARY
                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                     DATE
                                                                           g
            셤
                                                                                                              ò
                                                                                                                                               셤
                                                                                                                                                                                ö
                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
```

```
#authors Ann, D.K.; Carlson, D.M.
#journal J. Biol. Chem. (1985) 260:15863-15872
#title The structure and organization of a proline-rich protein gene of a mouse multigene family.
#cross-references MUID:86059475
                                                                                                                                                                       ##cross-references EMBL:211610; NID:91065725; PID:e264419; PID:91065726
This protein interacts with cellular transcription factors to transactivate immediate early viral genes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B38965 #type complete
hypothetical protein B - Enterobacter agglomerans insertion
                                                      herpes
(UL48).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     351 APAEAGGGWRRSGSTRTRGRAARSTIGRLQRPCCGPRRRAKC-CRAIP-RQRLR--ARGE 406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRHIS-GSGAFSQ-GRRPGRVCRLGWACKARSGPARGGPGPSPVRSGLGLSR-ARGSPGP 463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        208 PPPHASGPRRRLGCERAWNHSVREAGVPLGLPAPGARRRGGSASRSLPLPKRPRRGAAPE 267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B24264 *type fragment
proline-rich protein MP3 - mouse (fragment)
*formal_name Mus musculus *common_name house mouse
09-sep-1987 *sequence_revision 09-sep-1987 *text_change
03-May-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        84 PQGPPPPGGPQQRP-PQGPPPPGGPQPRPPQGPPPAGPRPPQGPPPAGPHLRPTQG
                                                                                                                                                                                                                                                                                                        *superfamily herpesvirus alpha trans-inducing protein DNA binding; transcription regulation #length 504 #molecular-weight 54028 #checksum 8743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           24 VNGSQQGPPPPGGPQPRPPGGPQPRPPGGPQPPPPGGPQPRPPGGPQPRP
Carpenter, D.E.; Misra, V. Gane (1992) 119:259-263 Sequences of the bowine herpesvirus 1 homologue of simplex virus type-1 alpha-trans-inducing factor
                                                                                                                                                                                                                                                                                                                                                                                                                              Pred. No. 8.51e-06;
33; Mismatches 56; Indels 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7;
                                                                                                                                                                                                                                                                                                                                                                                                          Length 504;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 240;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             65; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 136; DB 2;
Pred. No. 1.59e-03;
38; Mismatches 65
                                                                                                                                                                                                                                                                                                                                                                                                          DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1-240 ##label ANN
#superfamily proline-rich protein
#length 240 #checksum 5152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          143 PPPPGGPQPRPPQGPPPTGPQPRPTQGP-PP 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 153;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       324 QHHAGPPSTSRPPRPWDTPCPPVYAET 350
                                                                                                                                                        CAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        464 GPACGGPSRARGGRRRASPANP-FGGT
                                                                                                                                                     1-504 ##label
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 1.6%;
Best Local Similarity 27.2%;
Matches 41; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 1.8%;
Best Local Similarity 31.3%;
Matches 46; Conservative
                                                                                                                                                                                                                                                                                 0.07-0.086
                                                                                                                              ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##molecule_type DNA
```

US-08-951-733-20.rpr

```
*accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #authors Maeda, N.; Kim, H.S.; Azen, E.A.; Smithies, O.
#journal J. Blol. Chem. (1985) 260:11123-11130
#title Differential RNA splicing and post-translational cleavages in the human salivary proline-rich protein gene system.
#cross-references MUID:85289325
                                                                                                               Steibl, H.D.; Lewecke, F.M.
Gene (1995) 156:37-42
IS1222: analysis and distribution of a new insertion sequence
in Enterobacter agglomerans 339.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##residues 1-38,60-112,'T',114-115,'P',117-121,185-271,'A',273-310 ##residues #label LY3 ##cross-references EMBL:X07882; NID:935647; PID:9296670
                                                                                                                                                                                                                                                                                                                                                                                                                                        9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PIHUSD #type complete
sallvary proline-rich glycoprotein precursor PRB4 (large sallele) - human
basic proline-rich protein IB-5; proline-rich peptide P-D
#formal_name Homo sapiens #common_name man
19.Feb-1984 #sequence_revision 12-Apr-1996 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors Lyons, K.M.; Stein, J.H.; Smithies, O.
#journal Genetics (1988) 120:267-278
#title Length polymorphisms in human proline-rich protein genes generated by intragenic unequal crossing over.
#cross-references MUID:89121440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               42 ITELALERRR-FGYRR-IWQLLRREGLHVNHKRVYRLYHLSGLGVKRRRR-RKGLATERL 98
                  #formal_name Enterobacter agglomerans
03-Nov-1995 #sequence_revision 03-Nov-1995 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S03175; S10890; D25372; E38355; A03295; A61294;
                                                                                                                                                                                                                                                                                                                                   #mobile_element insertion sequence IS1222
MARY #length 276 #molecular-weight 31718 #checksum 3927
                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
9
                                                                                                                                                                                                                                                                                                                                                                                                 Length 276;
                                                                                                                                                                                                                                                                                                                                                                                             Score 141; DB 2; Length 276
Pred. No. 3.53e-04;
23; Mismatches 30; Indels
                                                                                                                                                                                                                                                   ##molecule_type DNA ##residues 1-30 c ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type DNA
##residues 35-36,'E',38-112,155-310 ##label
##cross-references EMBL:X07704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99 PLL-RPAAPNLTWSDDFVMDALATGRRIK 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 644 RFIPKPDGLRPIVNMDYVVGA-RTFRREK 671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##cross-references EMBL.X07715
##note large allele
cession S03175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     medium allele
S10890
sequence IS1222
                                                                                                                                                                                                                preliminary
                                                                                                                                                                                                                                                                                                                                                                                               Query Match 1.6%;
Best Local Similarity 33.7%;
Matches 30; Conservative
                                                                        B38965; S42922
A38965
                                                       17-Jul-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                05-Sep-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S03176; S
S62891
                                                                                                                                                                                                                                      ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S03176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##status
                                                                                                                                                                                                                    ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #accession
                                                                                                                                                                                               *accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##note
                                                                                                                 #authors
#journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              φ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
#authors
                                                                        ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSIONS
                                                                                                                                                          #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CONTAINS
ORGANISM
DATE
                    ORGANISM
                                                                                                                                                                                                                                                                                                                 GENETICS
                                                                                                                                                                                                                                                                                                                                                          SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
```

```
#authors Saitoh, E.; Isemura, S.; Sanada, K.
#journal J. Biochem. (1983) 93.495-502
#title Complete amino acid sequence of a basic proline-rich peptide,
#cross-references MUID:83186122
#accession A03295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      amino end of peptide designated basic proline-rich protein IB-5 it is unclear from the peptide sequence whether this is a product of the PRB2 (PIR:PIHUPF) or PRB4 (this entry) gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Chariton, A.J.; Baxter, N.J.; Lilley, T.H.; Haslam, E.; McDonald, C.J.; Williamson, M.P.
Choonald, C.J.; Williamson, M.P.
Tannin interactions with a full-length human salivary proline-rich protein display a stronger affinity than with single proline-rich repeats.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #domain signal sequence #status predicted #label SIG\
#product proline-rich peptide P-D #status experimental
#label MAT\
#binding_site carbohydrate (Asn) (covalent) #status
                                                                                                                     #authors Kauffman, D.L.; Bennick, A.; Blum, M.; Keller, P.J.
#journal Biochemistry (1991) 30:3351-3356
#title Basic proline-rich proteins from human parotid saliva:
    relationships of the covalent structures of ten proteins
from a single individual.
#cross-references MID:91190884
#accession E38355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Shimomura, H.; Kanai, Y.; Sanada, K.
J. Biochem. (1983) 93:857-863
Amino acid sequences of glycopeptides obtained from basic
proline-rich glycoprotein of human parotid saliva.
A61294
                                    1-36,'E', 38-112,'T', 114-115,'P',117-121,185-271,'A',
273-310 ##label MAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                168 QCGNQSQG-PPPHPGKPERPPP-QCG-NQSHRPPPPP-GKPER-PPPQGGNQSQG-P-PP 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #binding_site carbohydrate (Asn) (covalent) #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 predicted
#length 310 #molecular-weight 31351 #checksum 3960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ,
6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 310;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 1.6%; Score 142; DB 1; Length 310 Best Local Similarity 28.2%; Pred. No. 2.61e-04; Matches 40; Conservative 41; Mismatches 52; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type protein
##residues 54-57,'E',59-73,'R';82-101 ##label SHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #fcross-references GDB:119514; OMIM:180990
#map_position 12p13.2-12p13.2
22/1; 34/1
#introns 22/1; 34/1
#note the list of introns may be incomplete
#note sssiFCATION #superfamily proline-rich protein
Glycoprotein; saliva; tandem repeat
                                                                                                                                                                                                                                                                                            ##molecule_type protein
##residues 241-254,'RN',257-310 ##label KAU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##molecule_type protein
##residues 241-310 ##label SAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##molecule_type protein
##residues 241-252 ##label CHA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          experimental/
cession D25372
##molecule_type_mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A61294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            108,150,192,213,
                                                 ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##note
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##note
                                                                                                                     #authors
#journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           66,87,171
                                                                                                                                                                                                                                                                                                                                                      REFERENCE
#authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #journal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241-310
                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENETICS
#gene
```

```
Best Local Similarity 25.0%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ##status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #accession
                                                                                                                                                                                                                                                                                                                                                                              Φ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSIONS
                                                 157
                                                                                                                                                                                                                                      332
                                                                                                                                                                                                                                                                                                 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
ENTRY
                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                            ENTRY
                                                                                                                                                                                                                                                                                                                                                                                                                                         DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DATE
                                                   g
                                                                                                            셤
                                                                                                                                                                         ద
                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                 ò
                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Morch, M.D.; Boyer, J.C.; Haenni, A.L.
Nucleic Acids Res. (1988) 16:6157-6173
Overlapping open reading frames revealed by complete
nucleotide sequencing of turnip yellow mosaic virus genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               as
                                                                                                                                                                                                                                                                                                                                                                                                                                  the nucleotide sequence was submitted to the EMBL Data
Library, January 1991
#superfamily unassigned homeobox proteins; homeobox homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'n
                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ##cross-references EMBL:X07441; NID:g62222; PID:g62223 ##note the authors translated the codon ACG for residue 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          202 RPWSTASSDCSVGRTGIAPRGPAT-SPRPSRSPAAQDRSRPARSAPGPAASPGGPGAWTH 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNA binding; homeobox; nucleus; transcription regulation
                                                                                                                                         $16681  #type complete homeotic protein - human #formal_name Homo sapiens #common_name man 21-Nov-1993 #sequence_revision 10-Nov-1995 #text_change 17-oct-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S01955 #type complete
hypothetical protein, 69K - turnip yellow mosaic virus
#formal_name turnip yellow mosaic virus, TYMV
21.Nov-1993 #sequence_revision 26-May-1995 #text_change
24-Sep-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                            #authors Deguchi, Y.; Kehrl, J.H.
#journal Nucleic Acids Res. (1991) 19:3742
#title Nucleotide sequence of a novel diverged human homeobox encodes a DNA binding protein.
#checksum 3095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #checksum 7569
                                                                                                                                                                                                                                                                                                                                                          preliminary; nucleic acid sequence not shown;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ж
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 316;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 628;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #domain homeobox homology #label
th 316 #molecular-weight 34713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #length 628 #molecular-weight 69194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 136; DB 2; I
Pred. No. 1.59e-03;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20; Mismatches
                                                                                                                                                                                                                                                                                                                                                                            translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1.6%; Score 137;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ##status
##molecule_type genomic RNA
##residues    1-628 ##label MOR
                                                                                                                                                                                                                                                                                                                                                                                                       1-316 ##label DEG
                                                               APPAGKPQGPPPPPQGGRPPRP 302
                                                                                 317 SHPSVGRQHHAGPPSTSRPPRP 338
                                                                                                                                                                                                                                                                                                                                                                                                                       ##cross-references EMBL:X56537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #cross-references MUID:88289359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 1.6%;
Best Local Similarity 30.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #length 316
                                                                                                                                                                                                                                                                                                                                                                                         ##molecule_type mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S01955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S01955
                                                                                                                                                                                                                                                                                                                                          S16681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    261 PARPREQA 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             281 PGRTRGPS 288
                                                                                                                                                                                                                                                                                                                                                                                                       #residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION
                                                                                                                                                                                                                                                                                                                                                          ##status
                                                                                                                                                                                                                                                                                                                                              #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #journal
                                                                                                                                                                                                                                   ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSIONS
                                                              281
                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               73-127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #title
                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SUMMARY
                                                                                                                                           RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                                                                                                                                                   DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DATE
셤
                                   ö
                                                              셤
                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
```

```
the
                       20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #journal Eur. J. Biochem. (1991) 202:969-974
#title Gene sequence of mouse B-type proline-rich protein MP4.
Transcriptional start point and an upstream phylogenetic footprint with ets-like and rel/NFkB-like elements.
#cross-references MID:92111548
#accession S19560
                                                                                                         GPVLTETKPRTSVRQPRSATRGPSFRPILLPKV-VH-VHDDPPHSSLRPRGSRSRQLQPT 214
                                                                                                                                                                        215 VRRPLLAPNQFHSPRQPPPLSDDPGILGPRPLAPHSTRDPPPRPI-TPGPSN-THDLRPL 272
                                                                                                                                                                                                                             307
                                                                                                                                                                                                                                                                               331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            150 RAPGRAGRYPAARPAASAAASRRHRGPAARSSPAAERPAPPRARAEAAAPRRASSS-GS 208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #authors Fraser, K.M.; Hill, D.F.; Mercer, A.A.; Robinson, A.J. #journal Virology (1990) 176:379-389
#title Sequence analysis of the inverted terminal repetition in genome of the parapoxvirus, orf virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Roberts, S.G.E.; Layfield, R.; Bannister, A.J.; McDonald,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ##cross-references GB:M30023; EMBL:M37623; NID:g332561; PID:g332566 #cross-references GB:M30023; EMBL:Waight 25613 #checksum 1957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               D34768 #type complete
ORF4 protein - Orf virus (strain NZ2)
#formal_name Orf virus
23-Aug-1991 #sequence_revision 23-Aug-1991 #text_change
31-Oct-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         proline-rich protein MP4 - mouse
#formal_name Mus musculus #common_name house mouse
22-Nov-1993 #sequence_revision 10-Nov-1995 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             209 RASSGPPRRSAARS-SAASGSRPAASGPAARAPAASSARTSAGEGAARGPGAPRAGW 264
                                                                                                                                                                                                           273 SVLPRISPRECLLPNPRRHRISIGHIPPTITISRPIGPPSRLQRPVH-LYQSSPHIPNFRP
                                                                                                                                                                                                                                                                                                                            308 EG-ALSGTRHSHPSVGRQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLY-SSGDKEQLRP
                                                                                                                                                                                                                                                                                                                                                                                 SSIRKDALLQTGPRLGHLERLGQPANLRTSERSPPTKRRLPRSSEPNRLPKPLPEATLAP
                                                                                                                                                                                                                                                                                                                                                                                                                           366 SFLL-SSL-R--PSLTGARRLVETIFLGSRPWMPGTPRRLPRLPQRYWQMRPLFLELLG-
                          21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SYRHRRPYPLLPNPPAALPSIAYTSSRGKIHHSLPKGALPK-EGAPPPPRRL 442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 264;
                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 129; DB 2; Length 264
Pred. No. 1.24e-02;
40; Mismatches 37; Indels
Pred. No. 1.18e-03;
64; Mismatches 134;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #type complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 1.5%;
Best Local Similarity 28.2%;
Matches 33; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S19560; S22570
S19560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20-Mar-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               o.5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                D34768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A34768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 D34768
```

Ŋ

```
#introns
CLASSIFICATION
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION
KEYWORDS
FEATURE
                 L 126
                                                                                                                                                                                                                                                                                                              #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #journal
#title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #introns
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSIONS
REFERENCE
                                                                                                                                                                               ACCESSIONS
                 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
ORGANISM
DATE
                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16-317
                                                                                                         TITLE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENETICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    සි
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #authors Davis, E.O.; Johnston, A.W.B.
#journal Mol. Microbiol. (1990) 4:921-932
#title Analysis of three nodD genes in Rhizobium leguminosarum
blovar phaseoli; nodDl is preceded by nolE, a gene whose
product is secreted from the cytoplasm.
#cross-references MUID:91014692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    73 IREALQHIRLNIIPWDKFTPDQSDRHFR-VS-LCDFVTVVLFQKILERLAREAPGISFDL 130
                                                                                                                                                                                                                                                                                                                                                                                                 131 PGNQGGPPPQG-GPQQRPP-QPGNQGGPPPGGPQQRPPQPGGNQGGPP-QGGPHP-PPR 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         187 PGNQQGPPPQGGPQQRPTQPGNQQGPPQQGG-PQAPPRPGNQQGPPPQGPPRTGNQQ 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              262 RGAAPEPERTPVGQGSWAHPGRIRGPSDRGFCVVSPARPA-EEAISLEGALSGIRHSHPS 320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       202 AATQARPPHASGPRRRLGCERAWNHSVREAGVPLGLPAPGARRRGGSASRSLPLPKRPR 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LMIERNLTAAARSINLSQPAMSAAVRRL-RSYFRDEL-FTMRGREFVPTP-R-AEDLAPA 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9 LLRTWEALAPATP-AMPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLVQRGDPA 67
                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               phaseoli
#formal_name Rhizoblum leguminosarum bv. phaseoli
21.Nov-1993 #sequence_revision 13-Jan-1995 #text_change
16-Feb-1997
                                                                                   #authors Roberts, S.G.E.; Layfield, R.; McDonald, C.J.
#journal Nucleic Acids Res. (1991) 19:5205-5211
#title The mouse proline-rich protein MP6 promoter binds isoprenaline-inducible parotid nuclear proteins via highly conserved NFKB/rel-like site.
#cross-references MUID:92020206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          *superfamily regulatory protein lysR
DNA binding; transcription regulation
#length 302  #molecular-weight 34274  #checksum 3819
                                                                                                                                                                                                                                                                                         8443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nodulation protein nodD3 - Rhizobium leguminosarum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ٠<u>.</u>
                                                                                                                                                                                                                                                                    #superfamily proline-rich protein
#length 300 #molecular-weight 31129 #checksum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 302;
                                                                                                                                                                                                                                                                                                                           DB 2; Length 300;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   not compared with conceptual translation
                                                                                                                                                                                                                                                                                                                                          Pred. No. 6.92e-03;
40; Mismatches 54; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      28; Mismatches 46; Indels
                              ##residues 1-300 ##label ROB
##cross-references GB:X58438; NID:953181; PID:953182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 126; DB 2;
Pred. No. 2.92e-02;
                                                                                                                                                                                                                                                                                                                           Score 131;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #type complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1-302 ##label DAV
                                                                                                                                                                                                                                ##residues 1-14 ##label RO2
##cross-references EMBL:X61126
preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1.5%;
|larity 31.4%;
|Conservative
                                                                                                                                                                                                                                                                                                                       Query Match 1.5%;
Best Local Similarity 25.2%;
Matches 34; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               246 -GPPPQGGPQGPPRP 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ::|| : :||
VGRQHHAGPPSTSRP 335
                                                                                                                                                                                                              ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
Matches 38; Conserv
                                                                  522570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S11790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nodD3
               ##molecule_type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ##residues
                                                                                                                                                                                                                                  ##residues
                                                                                                                                                                                                                                                                      CLASSIFICATION
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION
KEYWORDS
SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          131 L 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ##status
                                                                                                                                                                                                #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17
                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
ENTRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       名
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
```

```
12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #domain signal sequence #status predicted #label SIG\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 122 GPPP-QGGNQSQG-PPPHPGKPEGPPP-QGG-NQSQGPPPRP-GKPE-GPPPQGGNQSQG 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       176 -P-PPRPGKPEGPPPQGGNQSQGPPPRPGKPEGPPPQGGNQSQGPPPRPGKPEGSPSQGG 233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #product proline-rich protein M14 #status predicted
#label MAT
                                                                                                                                                                                                                                                 protein genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A28996 #type complete
proline-rich protein M14 precursor - mouse
#formal_name Mus musculus #common_name house mouse
30-Jun-1989 #sequence_revision 30-Jun-1989 #text_change
20-Mar-1998
proline-rich protein - human #formal_name man 07-ormal_name Homo saplens #common_name man 07-ort-11994 #sequence_revision 26-May-1995 #text_change 08-Sep-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ann, D.K.; Smith, K.; Carlson, D.M.
J. Biol. Chem. (1988) 263:10887-108987-10898
Molecular evolution of the mouse proline-rich protein multigene family. Insertion of a long interspersed r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        22/1; 34/1
#superfamily proline-rich protein
#length 309 #molecular-weight 30936 #checksum 3043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #length 317 #molecular-weight 31719 #checksum 8454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 132; DB 2; Length 317;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 309;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 129; DB 2; Length 309
Pred. No. 1.24e-02;
38; Mismatches 53; Indels
                                                                                                                                                                                                                                                                                                                                                                                                     ##residues 1-309 ##label LYO ##cross-references EMBL:X07881; NID:q35637; PID:q296669
                                                                                                                                                                                       #authors Lyons, R.M.; Stein, J.H.; Smithies, O.
#journal Genetics (1988) 120:267-278
#title Length polymorphisms in human proline-rich j
generated by intragenic unequal crossing f
#cross-references MUID:89121440
                                                                                                                                                                                                                                                                                                                                                     preliminary; translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #superfamily proline-rich protein saliva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        311 LSGTRHSHPSVGRQHHAGPPSTSRPPRP 338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         234 -NKPRGPPPHPGKPQGPPPQEGNKPQRP 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #cross-references MUID:88273214
#accession A28996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 1.5%;
Best Local Similarity 30.4%;
Matches 45; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DNA element
                                                                                                                                                                                                                                                                                                                                                                              ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ##molecule_type DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A28996
                                                                                                                                                                                                                                                                                                                          S10889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##residues
```

셤

```
#authors Mazarakis, N.D.; Nelki, D.; Lyon, M.F.; Ruddy, S.; Evans, E.P.; Freemont, P.; Dudley, K.
#journal Development (1991) 111-561-571
#title Isolation and characterisation of a testis-expressed developmentally regulated gene from the distal inversion of the mouse t-complex.
#cross-references MID:91372153
#accession S22933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5,
                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Farrell, P.J.
submitted to the EMBL Data Library, August 1990
Sequence and transcription of Raji Epstein-Barr virus DNA
Spanning the B95-8 deletion region.
                                                                                          95 PPPGGPQPRPPGGPPPPGG-PQPRPPQGPPPPGGPQPRPPQGPPPPGGPQQRPPPG 153
                                                                                                                                                                              339 PAPGARRRGGSASRSLPL-PKRPRRGAAPEPERTPVGQGS-WAHP-GRTRGPSDRG-FCV 294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     34 SARGIDRVGSTVARARPPSPQGPRRGAVKTAPRGPVGHGGLRTGPTSRCPQPSARAKLPS 93
                                                               37 SGSQPRPPVNGSQQGPPPPGGPQPRP-PQGPPPFGGPQPRPPQGPPPFGGPQPRP-PQGP 94
                                                                                                                                                                                                                                                                                                                    testis specific protein Bs13 - mouse
formal_name Mus musculus #common_name house mouse
22.Nov-1993 #sequence_revision 10-Nov-1995 #text_change
10-Sep-1997
$222933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene LF3 protéin - human herpesvirus 4
#formal_name human herpesvirus 4, Epstein-Barr virus
19 Mar-1997 #sequence_revision 19-Mar-1997 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S27923
Parker, B.D.; Bankier, A.; Satchwell, S.; Barrell, B.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ##cross-references EMBL:X52128; NID:q54852; PID:g54853
.X #length 566 #molecular-weight 61970 #checksum 3815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##residues 1-924 ##label PAR ##cross-references EMBL:M35547; NID:g330420; PID:g330421 # cross-references EMBL:M35547; NID:g330420; # #checksum 8997 # # checksum 8997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .,
2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 1.5%; Score 132; DB 2; Length 924; Best Local Similarity 28.2%; Pred. No. 5.17e-03; Matches 37; Conservative 33; Mismatches 52; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 2; Length 566;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 1.5%; Score 127; DB 2; Length 566
Best Local Similarity 35.7%; Pred. No. 2.19e-02;
Matches 30; Conservative 19; Mismatches 30; Indels
Pred. No. 5.17e-03;
38; Mismatches 64; Indels
                                                                                                                                                                                                                                                                : | :: ||:: ||| 318 HPSVGRQHHAGPPSTSRPPRDTPCPP 345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #type complete
                                                                                                                                                                                                                                       154 GGPQPRPPQGPPPAGPQPRPPQGPPPP 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #cicc.
#accession 52220.
##molecule_type mRNA
1-566 ##label MAZ
1-566 ##label MAZ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         94 VTRGAPLPPSPG-KGHLGGTPSSH 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     295 VSPARPAEEATSLEGALSGTRHSH 318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ##molecule_type DNA ##residues
Best Local Similarity 26.4%;
Matches 39; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               08-Sep-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           527923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #submission
#description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSIONS
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUMMARY
                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ENTRY
                                                                                                                                                                                                                                                                                                                                                                                               LITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                        DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                   g
                                                                                                                                                                                              δŏ
                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                          ò
```

```
96 ADPA-DPVGHPA-A-P-RAPGPEPRIRLQPAIPRRSGAADPADPVGHPAAPRAPGPEPRI 151
 92
38 AAPRAPGPEPRIRLQPAIPRRSGAADPADPVGHPAA-PRAPGPEPRIRLQ-PAIPRRSGA
                                                                                                                                                                                Search completed: Thu Dec 24 07:48:05 1998 Job time: 320 secs.
                                                                                                            152 RLQPATPRRSG 162
                                                                                                                                        323 RQHHAGPPSTS 333
                          δλ
                                                   g
                                                                               οy
                                                                                                           සු
                                                                                                                                         ò
```

-

****	(TM)	****
*******		*******
*******	,	*******
***************************************		***************************************
********		********
********		********
******		*******
********	1	*******
****		****

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

MPsrch_pp protein - protein database search, using Smith-Waterman algorithm

Thu Dec 24 07:48:22 1998; MasPar time 38.16 Seconds 811.688 Million cell updates/sec Run on:

>US-08-951-733-20 (1-1154) from US08951733.pep 8624

Tabular output not generated.

1 HASGQRCVLLRTWEALAPAT.....TALEAAANPALPSDFKTILD 1154 Title: Description: Perfect Score: Sequence:

PAM 150 Gap 11 Scoring table:

74019 segs, 26840295 residues Searched:

Post-processing: Minimum Match 0% Listing first 45 summaries

swiss-prot35 1:swissprot Database:

Mean 55.898; Variance 96.260; scale 0.581 Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Pred. No.	4.64e-09	1.47e-07	4.56e-07	8.72e-06	5.26e-05	2.15e-04	4.31e-04	2.37e-03	1.69e-03	3.32e-03	1.25e-02	3.30e-02	3.32e-03	3.30e-02	3.32e-03	3.30e-02	1.17e-01	6.23e-02	8.54e-02	5.40e-01	1.17e-01	5.40e-01	8.54e-02
Description	HYPOTHETICAL BHLF1 PRO	ALPHA TRANS-INDUCING P	SALIVARY PROLINE-RICH	SALIVARY PROLINE-RICH	69 KD PROTEIN.	SALIVARY PROLINE-RICH	PROLINE-RICH PROTEIN M	NODULATION PROTEIN D I	TESTIS-SPECIFIC PROTEI	PROLINE-RICH PROTEIN M	NODULATION PROTEIN D I	BONE MORPHOGENETIC PRO	BONE MORPHOGENETIC PRO	HYPOTHETICAL PROTEIN U	MESENCHYME FORK HEAD P	REGULATORY PROTEIN E2.	HYPOTHETICAL GENE 1 PR	TRNA- (MS[2]IO[6]A)-HYD	HYPOTHETICAL 29.3 KD P	NODULATION PROTEIN D3.	NODULATION PROTEIN D I	MATING TYPE PROTEIN A-	SALIVARY PROLINE-RICH
А	YHL1_EBV	ATIN_HSVBP	PRPM_HUMAN	PRPL_HUMAN	V70K_TYMV	PRP4_HUMAN	PRP3_MOUSE	NOD3_RHILP	TS13_MOUSE	PRP2_MOUSE	NOD1_RHISN	BM8A_MOUSE	BMP8_HUMAN	UL61_HCMVA	MFH1_HUMAN	VE2_HPV05	VG01_HSVEB	MIAE_SALTY	Y091_NPVOP	NDO3_RHILO	NOD1_BRAJA	MATD_NEUCR	PRP1_HUMAN
8 :	н	Н	Н	Н	ч	н	-	-	Н	н	Н	П	н	Н	Н	Н	Н	7	٦	Н	-	-	
% Query Match Length DB	9	504	234	276	628	247	296	302	266	261	325	399	402	431	501	514	202	270	279	301	321	324	331
& Query Match	1.9	.1.8	1.7	1.6	1.6	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Score	162	153	150	142	137	133	131	126	127	125	121	118	125	118	125	118	114	116	115	109	114	109	115
Result No.	н	7	ю	4	S	φ	7	∞	თ	10	11	12	13	14	15	16	17	18	19	. 50	21	22	23

504 AA.

PRT;

RESULT 2 ID ATIN_HSVBP STANDARD; 1 AC P30020; DT 01-APR-1993 (REL. 25, CREATED)

```
GPPP-QGGNQSQG-PPPHPGKPERPPP-QGG-NQSHRPPPPPP-GKPER-PPPQGGNQSQG 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE; 83186122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               P10162; P02813;
01-MAR-1989 (RE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRPL_HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NON_TER
CHAIN
          88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 1D V7 AC P1 DT 01 DT 01 DT 01 DE 65 OS TI COC V:
                                                                                                                                         g
                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                         οy
                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps 10;
                                                                                                                                                                                                                                                        CARPENTER D.E., MISRA V.;
GENE 119:259-263(1992).

- FUNCTION: RESPONSIBLE FOR TRANSCRIPTIONAL ACTIVATION OF IMMEDIATE EARLY PROMOTERS (ALPHA GENES) (BY SIMILARITY).

- SIMILARITY: TO OTHER HERPESVIRUSES ALPHA TRANS-INDUCING PROTEIN.

EMBL: 211610; E224419; -

PIR; S24229; S34229.

PIR; JC1306; JC1306.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       351 APAEAGGGWRRSGSTRTRGRAARSTTGRLQRPCCGPRRRAKC-CRATP-RQRLR--ARGE 406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        407 PRHTS-GSGAFSQ-GRRPGRVCRLGWACKARSGPARGGPGPSPVRSGLGLSR-ARGSPGP 463
01-APR-1993 (REL. 25, LAST SEQUENCE UPDATE)
01-FEB-1994 (REL. 28, LAST ANNOTATION UPDATE)
ALPHA TRANS-INDUCING PROTEIN (ALPHA-TIF).
BOVINE HERPESYLKUS TYPE I (STRAIN P8-2).
VIRIDAE; DS-DNA ENVELOPED VIRUSES; HERPESVIRIDAE; ALPHAHERPESVIRINAE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-MAR-1989 (REL. 10, CREATED)
01-OCT-1996 (REL. 34, LAST SEQUENCE UPDATE)
01-OCT-1996 (REL. 34, LAST ANNOTATION UPDATE)
SALIVARY PROLINE-RICH PROTEIN PO (ALLELE M) (CONTAINS: PEPTIDE P-D)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        / Match 1.8%; Score 153; DB 1; Length 504; Local Similarity 31.3%; Pred. No. 1.47e-07; nes 46; Conservative 33; Mismatches 56; Indels 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
EUTHERIA; PRIMATES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1.7%; Score 150; DB 1; Length 234;
29.3%; Pred. No. 4.56e-07;
ative 41; Mismatches 53; Indels 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSCRIPTION REGULATION; TRANS-ACTING FACTOR; DNA-BINDING SEQUENCE 504 AA; 54028 MW; 79F42020 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REPEAT; PAROTID GLAND; SALIVA; MULTIGENE FAMILY.
NON_TER 1 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           234 PEPTIDE P-D.
23676 MW; ED2D4ADC CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  234 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | | | : | | : : | 324 QHHAGPPSTSRPPRPWDTPCPPVYAET 350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               464 GPACGGPSRARGGRRRASPANP-FGGT 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SMITHIES 0.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SANADA K.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE; 83186122.
SAITOH E, ISEMURA S., SANADA
J. BICCHEM. 93:495-502(1983).
EMBL; X07704; E265547;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity 29.3%;
nes 43; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
MEDLINE; 89121439.
LYONS K.M., STEIN J.H., SM
GENETICS 120:255-265(1988)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HOMO SAPIENS (HUMAN).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PIR; A03295; PIHUSD.
PIR; S03175; S03175.
HSSP; P19999; 1CLG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE OF 165-234.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         234 AA;
                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                   93012995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRPM_HUMAN
P10161; P02813;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MIM; 168730; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MIM; 180990; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT TO THE SOLL TO THE SOLL TO THE SOLL TO THE SOLL TO THE SOL THE 
          DD BE SEE TO BE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
```

```
6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          259 RPRRGAAPEPERTPVGQGSWAHPGRTRGPSDR-GFCVVSPARPAE-EATSLEGALSGTRH 316
                                                         142 -p-pphpgkpegpppgegnksrsarsppgkpggppggegnkpggpppggkpggpppggn 199
                                                                                      134 QGGNQSQG-PPPHPGKPERPPP-QGG-NQSHRPPPPP-GKPER-PPPQGGNQSQG-P-PP 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             187 HPGKPEGPPPQEGNKSRSARSPPGKPQGPPQQEGNKPQGPPPPGKPQGPPPGGNPQQPQ 246
                                                                                                                                                                                                                                                                                                                                 01-MAR-1989 (REL. 10, CREATED)
01-MAR-1989 (REL. 10, LAST SEQUENCE UPDATE)
01-OCT-1994 (REL. 30, LAST ANNOTATION UPDATE)
SALIVARY PROLINE-RICH PROTEIN PO (ALLELE K) (CONTAINS: PEPTIDE P-D)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
.
ف
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HOMO SAPIENS (HUMAN).
EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
EUTHERIA; PRIMATES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 276;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1.6%; Score 142; DB 1; Length 276
28.2%; Pred. No. 8.72e-06;
ttive 41; Mismatches 52; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ESULT 5

D V70K_TYMV STANDARD; PRT; 628 AA.

C P10357;
T 01-MAR-1989 (REL. 10, CREATED)
T 01-AUG-1992 (REL. 23, LAST SEQUENCE UPDATE)
T 01-AUG-1992 (REL. 23, LAST ANNOTATION UPDATE)
S OF KD PROTEIN.
T URNIP YELLOW MOSAIC VIRUS.
VIRIDAE; SS-RNA NONENVELOPED VIRUSES; TYMOVIRIDAE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REPEAT; PAROTID GLAND; SALIVA; MULTIGENE FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PEPTIDE P-D.
; 4838945A CRC32;
                                                                                                                                                                                                                                                                                             276 AA
                                                                                                                                                                               312 SGTRHSHPSVGRQHHAGPPSTSRPPRP 338
                                                                                                                                                    200 PQQPQAPPAGKPQGPPPPQGGRPPRP 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SMITHIES O.;
                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SAITOH E., ISEMURA S., SANADA K.,
J. BICCHEM. 93:495-502(1983).
EMBL; X07715, E4806; ALT_SEQ.
PIR; A03295; PIHUSD.
PIR; S03176; S03176.
MISSP: P19999; ICLG.
MIM; 180990; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               276 PER
; 27816 MW; '
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              317 SHPSVGRQHHAGPPSTSRPPRP 338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 247 APPAGKPQGPPPPPQGGRPPRP 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity 28.2%;
Matches 40; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
MEDLINE; 89121439.
LYONS K.M., STEIN J.H., SM
GENETICS 120:255-265(1988)
                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 207-276.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          276 AA;
```

 $\sim$ 

```
STRAIN-8002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NOD3_RHILP
P23720;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ω
    102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Loc
Matches
                                                                                              155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                         셤
                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
    윱
                                                 ò
                                                                                                                                           ö
                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                         Gaps 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PAROTID GLAND; MULTIGENE FAMILY; SALIVA; GLYCOPROTEIN; SIGNAL
                                                                                                                                                                                                                                                                                                                                                               | | | | : : | | | | : | | | : | : | | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            308 EG-ALSGTRHSHPSVGRQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLY-SSGDKEQLRP 365
                                                                                                                                                                                                                                                                                                                                 157 GPVLTETKPRTSVRQPRSATRGPSFRPILLPKV-VH-VHDDPPHSSLRPRGSRSRQLQPT 214
                                                                                                                                                                                                                                                                                                                                                                                                                                215 VRRPLLAPNQFHSPRQPPPLSDDPGILGPRPLAPHSTRDPPRPI-TPGPSN-THDLRPL 272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               250 ASRSLPLPKRPRRGAAPEPERTPVG-QGSWA-HPGRIRGPSDRGFCVVSPARPAEEATSL 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           332 SSIRKDALLQTGPRLGHLERLGQPANLRTSERSPPTKRRLPRSSEPNRLPKPLPEATLAP 391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          366 SFLL-SSL-R--PSLTGARRIVETIFLGSRPWMPGTPRRLPRLPQRYWQMRPLFLELLG- 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              273 SVLPRISPRGLLPNPRRHRISTGHIPPITISRPIGPPSRLQRPVH-LYQSSPHIPNFRP
                                       MORCH M.D., BOYER J.C., HAENNI A.L.;
NUCLEIT ACIDS RES. 16:6157-6173(1988).
-!- FUNCTION: NOT KNOWN.
-!- SIMILARITY: TO 65 TO 70 KD PROTEIN FROM OTHER TYMOVIRUSES.
EMBL: X07441; G62223; ALT_SEQ.
PIR: S01955; S01955.
SEQUENCE 628 AA; 9E64ED49 CRC32;
                                                                                                                                                                                                                                     Score 137; DB 1; Length 628;
Pred. No. 5.26e-05;
64; Mismatches 134; Indels 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
EUTHERIA; PRIMATES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 133; DB 1; Length 247;
Pred. No. 2.15e-04;
40; Mismatches 56; Indels 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     392 SYRHRRPYPLLPNPPAALPSIAYTSSRGKIHHSLPKGALPK-EGAPPPPRRL 442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRP4_HUMAN STANDARD; PRT; 247 AA.
P10163; P02813;
21-JUL-1986 (REL. 01, CREATED)
13-MGG-1997 (REL. 05, LAST SEQUENCE UPDATE)
01-OCT-1994 (REL. 30, LAST ANNOTATION UPDATE)
SALIVARY PROLINE-RICH PROTEIN PO PRECURSOR (ALLELE S).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GLYCOSYLATED PROTEIN
MISSING (IN REF. 2).
D -> A (IN REF. 2).
62BE90BB CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
MEDLINE: 85289325.
MARDA N. V. KIM H.-S., AZEN E.A., SMITHIES O.;
J. BIOL. CHEM. 260:11123-11130(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROTEIN N1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LYONS K.M., STEIN J.H., SMITHIES O. GENETICS 120.267-278 (1988).
EMBL; K03207; G190508; ...
EMBL; X07882; G296670; ...
HSSP; P19999; LCLG.
MIM; 180990; ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     16
39 PE
177 GI
57 MI
218 D
25108 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1.5%;
                                                                                                                                                                                                                                       Query Match 1.6%;
Best Local Similarity 25.0%;
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HOMO SAPIENS (HUMAN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best_Local Similarity
Matches 40; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            247 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A. MEDLINE; 89121440.
SEQUENCE FROM N.A. MEDLINE; 88289359.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REPEAT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUBCCERRE
                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
```

10;

Gaps

40; Conservative

```
74 PPPGGPQPRPPQGPPPPGG-PQPRPPQGPPPGGPQQRPPQGPPPPGGPQQRPPQGPPPP 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PPP-QGGNQSQGTPPPPGK-PERPPP-QGG-NQSHRPPPPP-GKPER-PPPQGGNQSQG- 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16 SGSQPRPPVNGSQQGPPPPGGPQPRP-PQGPPPPGGPQPRPPGGPQPRP-PQGP 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE; 91014692.

DAVIS E.O., JOHNSTON A.W.B.;

MOL. MICROBLOL. 4:921-932(1990).

-!- FUNCTION: NODD REGULATES THE EXPRESSION OF THE NOD ABCFE GENES
WHICH ENCODE OTHER NODLIATION PROPEINS. NODD IS ALSO A NEGATIVE
REGULATOR OF ITS OWN EXPRESSION. BINDS FLAVONOIDS AS INDUCERS.
                                                                                195 PPLYQLGAATQARPPPHASGPRRRLGCERAWNHSVREAGVPLGLPAPGARRRGGSASRSL
                                                                                                                                                                P-PPHPGKPEGPPPQEGNKSRSARSPPGKPQGPPQQEGNKPQGPPPPGKPQGPPPAGGNP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PLASMID SYM.
PROKARYOTA; GRACILICUTES; SCOTOBACTERIA; AEROBIC RODS AND COCCI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MUS MUSCULUS (MOUSE).
EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
EUTHERIA; RODENTIA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1.5%; Score 131; DB 1; Length 296;
llarity 26.4%; Pred. No. 4.31e-04;
Conservative 38; Mismatches 64; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1
296 AA; 29521 MW; C61DDCC6 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13-AUG-1987 (REL. 05, CREATED)
13-AUG-1987 (REL. 05, LAST SEQUENCE UPDATE)
10-COT-1994 (REL. 30, LAST ANNOTATION UPDATE)
PROLINE-RICH PROTEIN MP-3 (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-NOV-1991 (REL. 20, CREATED)
01-NOV-1991 (REL. 20, LAST SEQUENCE UPDATE)
01-NOV-1995 (REL. 32, LAST ANNOTATION UPDATE)
NODULATION PROTEIN D III.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       302 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         296 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RHIZOBIUM LEGUMINOSARUM (BIOVAR PHASEOLI).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             133 GGPQPRPPQGPPPAGPQPRPPQGPPPP 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  318 HPSVGROHHAGPPSTSRPPRPWDIPCPP 345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ANN D.K., CARLSON D.M.;
J. BIOL. CHEM. 260:15863-15872(1985).
EMBL; M12100; G200549; -.
HSSP; P19999; ICLG.
                                                                                                                                                                                                                                                                                                                                                                                           : |: :: || :: |314 TRHSHPSVGRQH-HAGPPSTSRPPRP 338
                                                                                                                                                                                                                                                                                                                                          214 QQPQDPPAGKPQGPPPPQGGRPPRP 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
hes 39; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A. MEDLINE; 86059475.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REPEAT; SALIVA.
NON_TER 1
SEQUENCE 296 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7
PRP3_MOUSE
P05143;
13-7-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RHIZOBIACEAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ID DTT PD DTT PD
```

; 9

```
94 VTRGAPLPPSPG-KGHLGGTPSSH 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                        셤
  셤
                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                         ę,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5,
                                                                                                                                                                                                                                                                                                                                                                                                                                                          73 IREALQHIRLNIIPWDKFTPDQSDRHFR-VS-LCDFVTVVLFQKILERLAREAPGISFDL 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17 IMIERNLTAAARSINLSOPAMSAAVRRL-RSYFRDEL-FTMRGREFVPTP-R-AEDLAPA 72
                                                                                                                                                                                                                                                                                                                                                                                   34 SARGIDRVGSTVARARPPSPQGPRRGAVKTAPRGPVGHGGLRTGPTSRCPQPSARAKLPS 93
                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MAZARAKIS N.D., NELKI D., LYON M.F., EVANS E.P., RUDDY S., FREEMONT P., DUDLEY K.; DEVELOPMENT 111:561-571(1991).
-!- FUNCTION: POSSIBLY PLAXS AN IMPORTANT ROLE IN SPERM DEVELOPMENT AND FUNCTION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MUS MUSCULUS (MOUSE).
EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
EUTHERIA; RODENTIA.
                                                                                                                                                                                                                                                                                                         6
SIMILARITY: BELONGS TO THE LYSR FAMILY OF TRANSCRIPTIONAL
                                            EMBL; X54215; G46237; -.
PIR; S11790; S11790.
PROSITE; PS00044; HTH_LYSR_FAMILY; 1.
NODULATION; TRANSCRIPTION REGULATION; DNA-BINDING; ACTIVATOR;
BEPRESSOR; PLASHID.
23 42 H-T-H MOTIF (BY SIMILARITY).
SEQUENCE 302 AA; 34274 MW; ED62D2FA CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -!- TISSUE SPECIFICITY: TESTIS.
-!- DEVELOPMENTAL STAGE: FIRSTLY EXPRESSED IN THE PACHYTENE SPERMATOCYTE STAGE.
-!- SIMILARITY: SOME TO YEAST SOKI.
-!- SIMILARITY: SOME TO YEAST SOKI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 127; DB 1; Length 566;
Pred. No. 1.69e-03;
19; Mismatches 30; Indels
                                                                                                                                                                                                                                                    Length 302;
                                                                                                                                                                                                                                                  Score 126; DB 1; Length 302
Pred. No. 2.37e-03;
28; Mismatches 46; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; S2293; Second Street 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7A421F03 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-NOV-1995 (REL. 32, LAST SEQUENCE UPDATE)
01-NOV-1997 (REL. 35, LAST ANNOTATION UPDATE)
TESTIS-SPECIFIC PROTEIN PBS13.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 566 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LRR 1.
LRR 2.
LRR 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-NOV-1995 (REL. 32, CREATED)
01-NOV-1995 (REL. 32, LAST SEQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61970 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN-CBA/CA; TISSUE-TESTIS;
MEDLINE; 91372153.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 35.7%;
Matches 30; Conservative
                                                                                                                                                                                                                                               Query Match
Best Local Similarity 31.4%;
Matches 38; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            566 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2298
2298
305
312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PIR; S22933;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 9

AC 001755,
DT 01-NOV-1995
DE TESTIS-SPECILUS
OC EUTARYCOTA; R
RN [1]
RN MEDLINE; 91:
RN FEEMONT P.
CC -1-FUNCTIO
CC -1-TISSUE
CC -1-SIMILAR
DR FREEMONT P.
CC -1-SIMILAR
DR MGD; MGI:96
KW TESTIS; SPE
FT DOMAIN
FT DOMAIN
FT DOMAIN
FT REPEAT
FT REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           131 L 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             L 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 239
SORRENERS
                                                                                                                                                                                                                                                                                                                                                        음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                        ò
```

-

```
76 РРОСРРРЕССРОРКРРОСРРРЕССРОРКРРОСРРРЕССРООКРРОСРРРЕСРОВЕРРОС 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ::| |: | | | : | | : | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  136 РРРРGGPQLRPPQGPPPAGP-QPRPPQGPPPAGPQPRPPQGPPTTGPQPRPTQGPPPT 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PERRET X.;

NATURE 387:394-401(1997).

INATURE 387:394-401(1997).

INATURE 387:394-401(1997).

INATURE 387:394-401(1997).

INATURE STAILAND NEGULATES THE EXPRESSION OF THE NOD ABCFE GENES WHICH ENCODE OTHER NODULATION PROTEINS. NODD IS ALSO A NEGATIVE REGULATOR OF ITS OWN EXPRESSION. BINDS FLAVONOIDS AS INDUCERS.

INATURE STAILANTY: BELONGS TO THE LYSR FAMILY OF TRANSCRIPTIONAL REGULATORS.

EMBL; AE000065; G2182301; -.

PROSTIES; PSO0044; HTH_LYSR_FAMILY; 1.

PROSTIES; PSO0044; HTH_LYSR_FAMILY; 1.

NODULATION; TRANSCRIPTION REGULATION; DNA-BINDING; ACTIVATOR; REPRESSOR; MULTIGENE FAMILY; PLASMID.

DNA_BIND 23 42 H-T-H MOTIF (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE; 97305956.
FREIBERG C.A., FELLAY R., BAIROCH A., BROUGHTON W.J., ROSENTHAL A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PLASMID SYM PNCR234A.
PROKARYOTA; GRACILICUTES; SCOTOBACTERIA; AEROBIC RODS AND COCCI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MUS MUSCULUS (MOUSE).
EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
EUTHERIA; RODENTIA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Match 1.4%; Score 125; DB 1; Length 261; Local Similarity 27.0%; Pred. No. 3.32e-03; es 40; Conservative 33; Mismatches 69; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PROLINE-RICH PROTEIN MP-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9D830DAF CRC32;
                                                                                                                                                                                                                                                            13-AUG-1987 (REL. 05, CREATED)
13-AUG-1987 (REL. 05, LAST SEQUENCE UPDATE)
01-OCT-1994 (REL. 30, LAST ANNOTATION UPDATE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-NOV-1997 (REL. 35, CREATED)
01-NOV-1997 (REL. 35, LAST SEQUENCE UPDATE)
01-NOV-1997 (REL. 35, LAST ANNOTATION UPDATE)
NODULATION PROTEIN D I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        322 AA
                                                                                                                                                                                          261 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
MEDLINE; 86659475.
ANN D.X., CARLSON D.M.;
J. BIOL. CHEM. 260:15863-15872(1985).
EMBL; M12099; G200547; -..
HSSP; P19999; 1CLG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                195 GGPQQQPPQGPPPGGPQPRPPQGPPPP 222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         321 VGROHHA--GPPSTSRP-PRPWDTPCPP 345
                                                                                                                                                                                                                                                                                                                                                                                         PROLINE-RICH PROTEIN MP-2 PRECURSOR
                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RHIZOBIUM SP. (STRAIN NGR234).
295 VSPARPAEEATSLEGALSGTRHSH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 261 AA; 26034 MW;
                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REPEAT; SALIVA; SIGNAL. SIGNAL 1 15 CHAIN 16 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NODD1 OR Y4AL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RHIZOBIACEAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NOD1_RHISN
P55359;
                                                                                                                                                                                      PRP2_MOUSE
P05142;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
```

ŝ

g

ò g ö

```
01-FEB-1994 (REL. 28, CREATED)
01-FEB-1994 (REL. 28, LAST SEQUENCE UPDATE)
15-JUL-1998 (REL. 36, LAST ANNOTATION UPDATE)
BONE MORPHOGENETIC PROTEIN 8 PRECURSOR (BMP-8) (OSTEOGENIC PROTEIN 2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
MEDLINE; 90269039.
CHEE M.S., BANKTER A.T., BECK S., BOHNI R., BROWN C.M., CERNY R.,
HORSNELL T., HUTCHISON C.A. III, KOUZARIDES T., MARTIGNETTI J.A.,
PREDDIE E., SATCHWELL S.C., TOMLINSON P., WESTON K.M., BARRELL B.G.;
CURR. TOP. MICROBIOL. IMMUNOL. 154:125-169(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12 GLALCALGGGGPGLRPPP-GC-PQRRLG-ARERRDVQREILAVLGLPGR-PRPRAPPAAS 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   UL61.
HUMAN CYTOMEGALOVIRUS (STRAIN AD169).
VIRIDAE; DS-DNA ENVELOPED VIRUSES; HERPESVIRIDAE; BETAHERPESVIRINAE.
                                                                                                                                                                                                                                                                                                                                                                                                                A MEDILINE; SUCHEGELEBERG P. N. J., JIN D.F., CLIFFORD G.M.,
A WARREN F.D., DRIER E.A., OPPERMANN H.;
J. BIOL. CHEM. 267.2520-25227(1992).
C. -1- FUNCTION: INDUCES CARTILAGE AND BONE FORMATION. MAY BE THE OSTEOINDUCTIVE FACTOR RESPONSIBLE FOR THE PHENOMENON OF EPITHELIAL OSTEOGENESIS. PLAYS A ROLE IN CALCIUM REGULATION AND BONE HOMEOSTAS: BY SIMILARITY).
C. -1- SUBUNIT: HOWODIMER, DISULFIDE-LIRRED.
C. -1- SUBUNIT: BELONGS TO THE TGF-BETA FAMILY.
REMBL, M97016; G189390; -.
REMBL, M97016; G180390; -.
REM
                                                                                                                                                                                                                                                  EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
EUTHERIA; PRIMATES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 1; Length 402;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POTENTIAL.
BONE MORPHOGENETIC PROTEIN 8.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. 3.32e-03;
12; Mismatches 21; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
INTERCHAIN (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POTENTIAL.
8F20C81B CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-AUG-1990 (REL. 15, CREATED)
01-AUG-1990 (REL. 15, LAST SEQUENCE UPDATE)
01-FEB-1991 (REL. 17, LAST ANNOTATION UFDATE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         431 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 125;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            44764 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best_Local Similarity 39.7%;
Matches 25; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HYPOTHETICAL PROTEIN UL61.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STANDARD;
                                                                                                                                                                                                                      HOMO SAPIENS (HUMAN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PIR; S09824; S09824.
HYPOTHETICAL PROTEIN
                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
TISSUE=HIPPOCAMPUS;
MEDLINE; 93094231.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20
264
301
330
334
366
158
158
402 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 253 SLP 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  68 RLP 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   UL61_HCMVA
P16818;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DISULFID
DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHAIN
      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ID AC DOT DOT SERVING 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                   44 LRTYFRDEL-FTMNGRELVPTP-R-AEALAPAVREALLHIHLSIISWDFNPAQSDRSFR 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE; 93094231.

OEZKAYNAK E., SCHNEGELSBERG P.N.J., JIN D.F., CLIFFORD G.M.,
WARREN F.D., DRIER E.A., OPPERMANN H.;
J. BIOL. CHEM. 267:22220-25227(1992).

-! FUNCTION: INDUCES CARTILAGE AND BONE FORMATION. MAY BE THE
OSTEDINDUCTIVE FACTOR RESPONSIBLE FOR THE PHENOMENON OF
EPITHELIAL OSTEOGENESIS. PLAYS A ROLE IN CALCIUM REGULATION
AND BONE HOMEOSTASIS. PLAYS A ROLE IN CALCIUM REGULATION
-!- SUBUNIT: HOMODIMER, DISOLETIDE-LIRRED.
-!- DEVELOPMENTAL STRAGE: EXTENSIVE EXPENSIVE EXPENSIVE
FELL DRASTICALLY IN 10-DAY EMBRYOS AND VIRTUALLY ABSENT IN 17-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-FEB-1994 (REL. 28, CREATED)
01-FEB-1994 (REL. 28, LAST SEQUENCE UPDATE)
01-OCT-1996 (REL. 34, LAST ANNOTATION UPDATE)
BONE MORPHOGENETIC PROTEIN 8A PRECURSOR (BMP-8A) (OSTEOGENIC PROTEIN
                                                                                                                                                                                                                      12 GLALCALGGGHGPRPP-HTC-PQRRLG-ARERRDMQREILAVLGLPGR-PRPRAQPAAAR 67
                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DAY EMBRYOS.

-!- SIMILARITY: BELONGS TO THE TGF-BETA FAMILY.

EMBL, M97017, 2200141; -.

MGD: MGI:104515; BMP8.

PROSITE; PS00250; TGF_BETA; 1.

SIGNAL: GROWTH FACTOR: CYTOKINE; BONE; CARTILAGE; GLYCOPROTEIN.
                                                                                                                           7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMPĜA OR BMP8 OR BMP-8.
MUS MUSCULUS (MOUSE).
EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL.
BOTENTIAL.
BOYEN MORPHOGENETIC PROTEIN 8A.
BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
INTERCHAIN (BY SIMILARITY).
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 118; DB 1; Length 399;
Pred. No. 3.30e-02;
12; Mismatches 22; Indels
                                                        Length 322;
                                                        Score 121; DB 1; Length 322
Pred. No. 1.25e-02;
23; Mismatches 35; Indels
36460 MW; FA5238EE CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7075A1ED CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           402 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ą
                                                                                                                                                                                                                                                                                                                                           : | :::: : |:|: | || || || 95 QVSCLKELVARV-LQRLCERGAKNVLAFGFALL 126
                                                                                                                                                                                                                                                                                                     101 -II-LSDFMTLMFLERVVVRVAREAPAVSFELL 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               44764 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity 38.7%;
Matches 24; Conservative
                                                        Query Match 1.4%;
Best Local Similarity 30.1%;
Matches 28; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               340
399 AA;
322 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EUTHERIA; RODENTIA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TISSUE-EMBRYO
                                                                                                                                                                                                                                                                                                                                                                                                                                                         LT 12
BM8A_MOUSE
P34821;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            II 13
BMP8_HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       68 QP 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
CARBOHYD
SEQUENCE
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SIGNAL
PROPEP
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             254 LP
```

RESULT ID BY

g ò 셤 ð

ů

5; Gaps

```
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ä
                                                                                                                                                     268 RGGGGKPPLGSPRA-TDGNRDPG-A-GVPARPGRRMGGSSGGRGGTPGRGPERAAPGARP 324
                                                                                                                                                                               367 SPLSALNLAAGQEGALAATGHHHQHHCHHHPQAPPPPPAPQPQPQPTPQPGAAAQAASWYL 426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15-JUL-1998 (REL. 36, CREATED)
15-UDL-1998 (REL. 36, LAST SEQUENCE UPDATE)
15-JUL-1998 (REL. 36, LAST ANNOTATION UPDATE)
MESENCHYME FORK HEAD PROTEIN I (MFH-1 PROTEIN) (TRANSCRIPTION FACTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                      6; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE; 97312712.

MEDLINE; 97312712.

MEDLINE; 97312712.

MICHAEL N., IIDAA H., YANG X.-L., SUGIYAMA T.; GENOMICS 41:489-492(1997).

-!- FUNCTION: MIGHT BE INVOLVED IN THE FORMATION OF SPECIAL MESENCHYMAL TISSUES (BY SIMILARITY).

-!- SUBCELLUIAR LOCATION: NUCLEAR (PROBABLE).

-!- SIMILARITY: CONTAINS! FORK-HEAD DOMAIN.

R MIM; 602402; ...

R PROSITE; PSO0653; FORK, HEAD 1; 1.

R PROSITE; PSO0659; FORK, HEAD 2; 1.

R PROSITE; PSO0659; FORK HEAD 2; 1.

R PROSITE; PSO0659; FORK HEAD 2; 1.

R PROSITE; PSO0659; FORK HEAD 3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HOMO SAPIENS (HUMAN).
EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
EUTHERIA; PRIMATES.
                                                    Length 431;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 501;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 125, DB 1; Length 501
Pred. No. 3.32e-03;
28; Mismatches 38; Indels
                                                 Score 118; DB 1; Length 431
Pred. No. 3.30e-02;
20; Mismatches 31; Indels
44309 MW; 232AB9D7 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POLY-ALA.
99D32EFA CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                           501 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HIS-RICH.
ALA/PRO-RICH.
POLY-PRO.
                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                      325 TAPDGAPGRWDGPADGPAPGLGRG 348
                                                                                                                                                                                                                                                                                     416 422 P
501 AA; 53719 MW;
                                                 Query Match 1.4%;
Best Local Similarity 32.1%;
Matches 27; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 1.4%;
Best Local Similarity 28.4%;
Matches 27; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
431 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FKH-14).
FKHL14 OR MFH1.
                                                                                                                                                                                                                                                                                                                                                                              RESULT 15

TID MEHLLHUMAN
AC 099958;
DT 15-JUL-1998
DE MESENCHIME F
DE FKH-14).
GN HOMO SAPIENS
OC EUTHERIA; PR
RP SEQUENCE FRO
RP SEQUENCE FRO
RN (1]
RA MIURA N. II
GENDALINE; 973
RA MIURA N. II
GENDALINE
CC -! FUNTION
FT DOMAIN
SQ SEQUENCE
                                                                                                                                                     g
                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
```

Search completed: Thu Dec 24 07:51:35 1998 Job time: 193 secs.

g S

(MZ)			
	*****	(TM)	****
	******		***
	******		*****
	*****		*****
	*****		*****
	******		*****
	*******	'' '	*****
 	******		*****
7	****	1 /	**********

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

protein - protein database search, using Smith-Waterman algorithm MPsrch_pp

Thu Dec 24 07:51:54 1998; MasPar time 76.57 Seconds 750.503 Million cell updates/sec Run on:

not generated. Tabular output >US-08-951-733-20 (1-1154) from US08951733.pep 8624 1 HASGRCVLLRTWEALAPAT.....TALEAAANPALPSDFKTILD 1154 Title: Description: Perfect Score: Sequence:

PAM 150 Gap 11 Scoring table:

165420 seqs, 49795644 residues Searched:

Minimum Match 0% Listing first 45 summaries Post-processing:

Database:

sptremb16

1:sp_archea 2:sp_bacteria 3:sp_fungi 4:sp_human 5:sp_lnvertebrate 6:sp_nammal 7:sp_mhc 8:sp_organelle 9:sp_hage 10:sp_plant 11:sp_rodent 12:sp_unclassified 13:sp_vertebrate 14:sp_virus

Mean 54.168; Variance 101.474; scale 0.534 Statistics: Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

	Pred. No.	0.00e+00	0.00e+00	0.00e+00	1.37e-110	3.12e-111	1.97e-60	2.25e-57	1.71e-35	7.18e-06	2.85e-05	4.02e-05	5.65e-05	3.03e-04	7.93e-05	4.23e-04	3.03e-04	3.01e-03	1.57e-03	3.01e-03	1.14e-03
	Description	TELOMERASE REVERSE TRA	TELOMERASE CATALYTIC S	TELOMERASE REVERSE TRA	TELOMERASE REVERSE TRA	TELOMERASE REVERSE TRA	TELOMERASE SUBUNIT P12	TELOMERASE CATALYTIC S	CHROMOSOME XII COSMID	HYPOTHETICAL PROTEIN (	WISKOTT-ALDRICH SYNDRO	PAROTID 'O' PROTEIN (F	IS 1222 GENE ORF-A AND	HOMEOBOX PROTEIN (FRAG	POLYKETIDE SYNTHASE (F	HYPOTHETICAL 60.2 KD P	PLENTY - OF - PROLINES - 101	HOMOLOGUE OF RETROVIRA	PROLINE RICH PROTEIN.	SALIVARY PROLINE-RICH	PROLINE RICH PROTEIN P
	ΩI	014746	014783	070372	013339	013338	000939	035432	006163	069118	036027	009000	046612	920660	054226	041935	070495	085301	061888	004118	062103
	DB	4	4	11	က	٣	'n	11	m	14	m	4	~	7	7	14	11	14	11	4	11
	Query Match Length DB	1132	1132	1122	988	686	1031	67	884	296	574	234	276	316	373	585	897	264	300	309	317
æ	Ouery	98.2	98.1	59.8	7.9	7.9	5.1	4.9	3.6	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5
	Score	8465	8459	5161	678	681	439	424	314	147	143	142	141	136	140	135	136	129	131	129	132
	Result No.	-	7	m	4	ഗ	φ	7	80	σ	10	11	12	13	14	15	16	17	18	19	50

4.15e-03 8.18e-04 1.14e-03 1.18e-03 7.85e-03 7.85e-03 1.08e-02 1.08e-02 9.42e-02 9.42e-02 9.42e-02 1.48e-02 1.08e-02 2.02e-02 2.02e-02 1.48e-02 2.76e-02 2.76e-02 2.76e-02	1.72e-01 2.32e-01 2.32e-01 1.72e-01
BETA-KETOACYL SYNTHASE SIMILARITY TO COLLAGEN LLF3 PROTEIN. HYPOTHETICAL 131.9 KD UL36. COGGED FOR BY C. ELEGAN COGGED FOR BY C. ELEGAN PROLINE-RICH SALIVARY SUBSTRATE OF THE PROTE MPIKA3030 NODD1 GENE IN EXONGLEASE SBCD HOMOL FLHF. CHITINASE PRECURSOR. EXTENSIN (FRAGMENT). PRPL-2 PROTEIN. PRPL-2 PROTEIN. PRPL-2 PROTEIN. SER/ARCATING PROTE VIRAL PROTEINASE. SER/ARCATED NUCLEA HYPOTHETICAL 9.9 KD PR PROTIETICAL 9.9 PR PROLINE-RICH PROTEIN.	PROLINE-RICH PROTEOGLY PRBIM PROTEIN (FRAGMEN CONI SEQUENCE OF BAC F20P5
053913 0052123 0052123 0052307 005554 065554 065556 065107 065109 065109 065109 065109 065109 065109 065109 065109 065109 065109 065109 065109 065109 065109	Q07611 Q16038 Q00599 Q04528
4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	10 4 1
00011 00010 00010 00010 00010 00010 00010 00010 00010 00010 00010 00010 00010 00010 00010 00010 00010	295 297 382 488
ন্যন্ন্যন্ন্যন্ন্যন্ন্ৰ লেখেলেলেক্ৰ্ৰ্ক্ৰ্ক্ৰ্ক্ৰ্ক্ৰ্ক্ল্ল	
128 1332 1332 1332 1332 126 118 118 118 118 112 123 112 113 115	116 115 115 116
12222222222222222222222222222222222222	4 4 4 4 2 6 4 4 5

## ALIGNMENTS

The cold   The cold	17 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------

ö

```
1020
                                                                                                                                                                                        099
                                                                                                                                                                                                                                                            780
                                                                                                                                                                                                                                                                                              840
                                                                                                                                                                                                                                                                                                               862
                                                                                                                                                                                                                                                                                                                               900
                                                                                                                                                                                                                                                                                                                                                                 960
                                                                                                                                                                                                                                                                                                                                                                                 982
                                                                                                                      540
                                                                                                                                                       9
                                                                                                                                                                      622
                                                                                                                                                                                                         682
                                                                                                                                                                                                                          720
                                                                                                                                                                                                                                           742
                                                                                                                                                                                                                                                                             802
                                                                                                                                                                                                                                                                                                                                                922
                                                 420
                                                                   442
                                                                                   480
                                                                                                     502
                                                                                                                                      562
                                382
                                                                                                                                                      QETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHAVRIRGKSYVQCQGIPQGSILSTL
                                                                                                                                                                                                                                                                                                                                                                                                                                            LCSLCYGDMENKLFAGIRRDGLLLRLVDDFLLVTPHLTHAKTFLRTLVRGVPEYGCVVNL
                                                                                                                                                                                                                                                                                                                                        FHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAKGAAGPLPSEAVQWLCHQAFLL
                          PQDRLTEVIASIIKPQNTYCVRRYAVVQKAAHGHVRKAFKSHVSTLTDLQPYMRQFVAHL
                                                                                                                                                                                                                                                                     QETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHHAVRIRGKSYVQCQGIPQGSILSTL
GAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARPAEEATSLEGALSGTRHSHPSVG
                                                   VETIFLGSRPWMPGTPRRLPRLPQRYWQMRPLFLELLGNHAQCPYGVLLKTHCPLRAAVT
                                                            PAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSPWQVYGFVRACLRRLVPPGLWGS
                                                                                                                                                                                         LSEAEVRQHREARPALLTSRLRFIPKPDGLRPIVNMDYVVGARTFRREKRAERLTSRVKA
                                                                                                                                                                                                                           LFSVLNYERARRPGLLGASVLGLDDIHRAWRTFVLRVRAQDPPPELYFVKVDVTGAYDTI
                 RQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKEQLRPSFLLSSLRPSLTGARRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HOMO SAPIENS (HUMAN).
EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
EUTHERIA; PRIMATES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KLTRHRVTYVPLLGSLRTAQTQLSRKLPGTTLTALEAAANPALPSDFKTILD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17 2 014783 PRELIMINARX; PRT; 1132 AA. 014783; 014783; 01-JAN-1998 (TREMBLREL. 05, CREATED) 01-JAN-1998 (TREMBLREL. 05, LAST SEQUENCE UPDATE) 01-JUN-1998 (TREMBLREL. 06, LAST ANNOTATION UPDATE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELOMERASE CATALYTIC SUBUNIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            [1]
SEQUENCE FROM N.A.
MEDLINE; 97433088
                                                                                                                                                                                                                                                                                                                                                                                                                                                    1043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1103
                                                                                                                                                                                                                                                                                                                                                                                                                                    1021
                                                                   383
                                                                                                     143
                                                                                                                                      503
                                                                                                                                                                       563
                                                                                                                                                                                                         623
                                                                                                                                                                                                                                           683
                                                                                                                                                                                                                                                                             743
                                                                                                                                                                                                                                                                                              781
                                                                                                                                                                                                                                                                                                               803
                                                                                                                                                                                                                                                                                                                                841
                                                                                                                                                                                                                                                                                                                                               863
                                                                                                                                                                                                                                                                                                                                                                 901
                                                                                                                                                                                                                                                                                                                                                                                 923
                                                                                                                                                                                                                                                                                                                                                                                                                  983
263
                 301
                                 323
                                                 361
                                                                                    121
                                                                                                                     481
                                                                                                                                                       541
                                                                                                                                                                                        601
                                                                                                                                                                                                                          199
                                                                                                                                                                                                                                                            721
                                                                                                                                                                                                                                                                                                                                                                                                   961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
1D 01
AC 01
DT 01
DT 01
DT 01
DE HE
CO EC
CO EC
RN (I
                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                셤
                                  å
                                               셤
                                                                 ò
                                                                                   셤
                                                                                                     ó
                                                                                                                 요
                                                                                                                                     δ
                                                                                                                                                    셤
                                                                                                                                                                      ò
                                                                                                                                                                                     g
                                                                                                                                                                                                         ò
                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                          음
                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                             용
                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
ò
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       960
                                                                                                                                                                   202
                                                                                                                                                                                    240
                                                                                                                                                                                                                   300
                                                                                                                                                                                                                                                 360
                                                                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                                                 442
                                                                                                                                                                                                                                                                                                                480
                                                                                                                                                                                                                                                                                                                               502
                                                                                                                                                                                                                                                                                                                                               540
                                                                                                                                                                                                                                                                                                                                                             562
                                                                                                                                                                                                                                                                                                                                                                             900
                                                                                                                                                                                                                                                                                                                                                                                            622
                                                                                                                                                                                                                                                                                                                                                                                                            999
                                                                                                                                                                                                                                                                                                                                                                                                                             682
                                                                                                                                                                                                                                                                                                                                                                                                                                            720
                                                                                                                                                                                                                                                                                                                                                                                                                                                           742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         802
                                                                                                                      120
                                                                                                                                                    180
                                                                                                                                                                                                   262
                                                                                                                                                                                                                                  322
                                                                                                                                                                                                                                                                 382
                                                                                       9
                                                                                                   82
                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                 RKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRTLEVQSDYSSYARTSIRASLTF
                                                                                               PQDRLTEVIASIIKPQNTYCVRRYAVVQKAAHGHVRKAFKSHVSTLTDLQPYMRQFVAHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAFGFALLDGARGGPPEAFTTSVR
                                                                                                                                                    SYLPNIVIDALRGSGAWGLLLRRVGDDVLVHLLARCALFVLVAPSCAYQVCGPPLYQLGA
                                                                                                                                                                                    ATQARPPHASGPRRRLGCERAWNHSVREAGVPLGLPAPGARRRGGSASRSLPLPKRPRR
                                                                                                                                                                                                                   GAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARPAEEATSLEGALSGTRHSHPSVG
                                                                                                                                                                                                                                                  RQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKEQLRPSFLLSSLRPSLTGARRL
                                                                                                                                                                                                                                                                                                                                                                              LAKFLHWLMSVYVVELLRSFFYVTETTFQKNRLFFYRKSVWSKLQSIGIRQHLKRVQLRE
                                                                                                                                                                                                                                                                                                                                                                                                              LSEAEVRQHREARPALLTSRLRFIPKPDGLRPIVNMDYVVGARTFRREKRAERLTSRVKA
                                                                                                                                                                                                                                                                                                                                                                                                                                            LFSVLNYERARRPGLLGASVLGLDDIHRAWRTFVLRVRAQDPPPELYFVKVDVTGAYDTI
                                                                                       MPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLVQRGDPAAFRALVAQCLVCVPW
STEINER P.,
M.J., LIU
                                                                       ö
  STEINER
                                                       Length 1132;
                                                                       Indels
ELLISEN L.W., S
R.L., DAVIDOFF
                                        CRC32
                                                      Score 8459; DB 4;
Pred. No. 0.00e+00;
0; Mismatches 1.
                                       Clesear
MEYERSON M., COUNTER C.M., EATON E.N., EI CADDLE S.D., ZIAGRA L., BELJERSBERGEN R. BACCHETII S., HABER D.A., WEINBERG R.A.; CELL 90:788-795(1997).
EMBL; AF018167; G2347129; -.
SEQUENCE 1132 AA; 126937 MW; CIE5EZAR
                                                       Match 98.1%;
Local Similarity 99.9%;
les 1131; Conservative
                                                        Query Match
                                                                Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                             563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          743
                                                                                                                                                                                                                                                                                                                                                                                                                             623
                                                                                                                                                                                                                                                                                                                                                                                                                                            199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       863
                                                                                                      23
                                                                                                                                     83
                                                                                                                                                                    143
                                                                                                                                                                                    181
                                                                                                                                                                                                   203
                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                  263
                                                                                                                                                                                                                                                                 323
                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                 383
                                                                                                                                                                                                                                                                                                                                                                              541
                                                                                                                                                                                                                                                                                                                                                                                                             601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       901
                                                                                                                      61
                                                                                                                                                    121
                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
 SO REA SO
                                                                                                                     g
                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                            δý
                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                        음
                                                                                                                                                  g
                                                                                                                                                                                   g
                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                 Óλ
                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                      ŏ
                                                                                                                                     ò
                                                                                                                                                                   ò
                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                  ò
```

579 611 759

848 879 908 939

```
LQAYRFHACVIQLPFDQRVRKNLTFFLGIISSQASCCYAILKVKNPGMTL--K-ASGSFP 1056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SGYAQTSIKTSLTFQSVFKAGKTMRNKLLSVLRLKCHGLFLDLQVNSLQTVCINIYKIFL 999
                                                                                                                                                                                                                                                                                                                                     700 KADVIGAYDAIPQGKLVEVVANMIRHSESTYCIRQYAVVRRDSQGQVHKSFRRQVITLSD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           760 LQPYMGQFLKHLQDSDASALRNSVVIEQSISMNESSSSLFDFFLHFLRHSVVKIGDRCYT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |||||| ||: |||: |: |:||: ||||| ||:||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             820 QCQGIPQGSSLSTLLCSLCFGDMENKLFAEVQRDGLLLRFVDDFLLVTPHLDQAKTFLST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RQHLERVRLRELSQEEVRHHQDTWLAMPICRLRFIPKPNGLRPIVNMSYSMGTRALGRRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LVHGVPEYGCMINLQKTVVNFPVEPGTLGGAAPYQLPAHCLFPWCGLLLDTQTLEVFCDY
                                                                                                                                                                                                                                                                                                   QAQHFTQRLKTLFSMLNYERTKHPHLMGSSVLGMNDIYRTWRAFVLRVRALDQTPRMYFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LINE M., RAJANDREAM M.A., BARRELL B.G., VOLCKAERT G.; SUBMITTED (MAR-1998) TO EMBL/GENBANK/DDBJ DATA BANKS. EMBL; AF015783; G2340168; -. EMBL; AL022299; E1285360; -. EMBA; PF00078; Pt. R. R. PRAM; PROOF78; Pt. R. R. PRECTED DNA POLYMERASE. SEQUENCE 988 AA; 116328 MW; 39C385A7 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-JAN-1998 (TREMBLREL. 05, CREATED)
01-JAN-1998 (TREMBLREL. 05, LAST SEQUENCE UPDATE)
01-AUG-1998 (TREMBLREL. 07, LAST ANNOTATION UPDATE)
TELOMERASE REVERSE TRANSCRIPTASE 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SIGNATE: 97.25.7,
MAKAWURE; 9740623.
NAKAWURE T.M., MORIN G.B., CHAPMAN K.B., WEINRICH
LINGNER J., HARLEY C.B., CECH T.R.;
SCIENCE 277:955-959(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EUKARYOTA; FUNGI; ASCOMYCOTINA; HEMIASCOMYCETES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SCHIZOSACCHAROMYCES POMBE (FISSION YEAST).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1117 FQTILD 1122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1149 FKTILD 1154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN-972H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      T 4
013339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          013339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       940
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SO DE LA PROPERTIE DE LA PROPE
                                                                                                                                                   a
                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                           ò
                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps 24;
                                                                                                                                                                                                                142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SYLPNTVIETLRVSGAWMLLLSRVGDDLLVYLLAHCALYLLVPPSCAYQVCGSPLYQICA 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIDIWPSVSASYRPIRPVGRNFTNLRFLQQIKSSSRQEAPKPLALPSRGTKRHLSLTSTS 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RSHCRFR---T--AN----Q--Q--VT--DALNTSPPHLMDLLRLHSSPWQVYGFLRACL 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GSQPPPADLSFHQVSSLKELVARVVQRLCERNERNVLAFGFELLNEARGGPPMAFTSSVR 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        :|::|: || ||:|: |: || ATQARPPPHAS-GPRRIGGE-RA-W--NH---SVR-EAGVPLGLPAPGARRRGGSASRS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    :| :| :| : | | | | | : :|::| | | : | | :| | | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | :| | 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MTRAPRCPAVRSLLRSRYREVWPLATFVRRLGPEGRRLVQPGDPKIYRTLVAQCLVCMHW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VPSAKKARCYPVPRVEEGPHRQVLPTPSGKSWVPSPARS-PEV-PT-AEKDLSS-KGKVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DLSLS-GSVCCKHKPSSTSLLSPPRQNAFQLRP-FIETRHFLYSRGDGQERLNPSFLLSN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOPNLTGARRLVEIIFLGSRPRTSGPLCRTHRLSRRYWOMRPLFQQLLVNHAECQYVRLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCTNIYKILLLQAYRFHACVLQLP
RKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRTLEVQSDYSSYARTSIRASLTF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  R.A.
                                                                                                                                                                                                                                                                                                                                                            01-40G-1998 (TREMBLREL. 07, CREATED)
01-40G-1998 (TREMBLREL. 07, LAST SEQUENCE UPDATE)
01-40G-1998 (TREMBLREL. 07, LAST ANNOTATION UPDATE)
TELOMERASE REVERSE TRANSCRIPTASE.
MUS MUSCULUS (MOUSE).
EUKARYOTA, METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              / Match 59.8%; Score 5161; DB 11; Length 1122; Local Similarity 62.7%; Pred. No. 0.00e+00; Conservative 198; Mismatches 192; Indels 38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  L., MORIN G.B., DEPINHO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
GREENBERG R.A., ALLSOPP R.C., CHIN L., MORIN G.B
ONCGENE 0:0-0-(1998).
EMB. AFOS1911: G3005592; -.
RNA-DIRECTED DNA POLYMERASE.
SEQUENCE 1122 AA: 127977 MW; 222075D6 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT; 1122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EUTHERIA; RODENTIA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CT 3
070372
070372;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                       셤
                                                                                                                                               ð
                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               名
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
```

S.L., ANDREWS

```
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ID DTT ACCOUNT BY THE B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          유
                                                                          셤
                                                                                                                                                     ŏ
                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                      MEDLINE; 97400623.
NAKAMURA T.M., MORIN G.B., CHAPMAN K.B., WEINRICH S.L., ANDREWS W.H.,
LINOMER J., HARLEY C.B., CECH T.R.;
SCIENCE 277:955-959(1997).
EMBL. APOLTAST3; G2340169; -.
PFAM: PFO0078; rvt.
RNA-DIRECTED DNA POLYMERASE.
                                                                                                                                          340 PNQVFAFLRSILVRVFPKLIWGNQRIFEIILKDLETFLKLSRYESFSLHYLMSNIKISEI 399
                                                                                                                                                                                                                                                                                           457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GHIVKIGNSQYLQKVGIPQGSILSSFLCHFYMEDLIDEYLSFTKKKGSVLLRVVDDFLF1 747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | : || || : | | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | : | | : | : | | : | : | | : | : | | : | : | | : | : | | : | : | | : | : | | : | : | | : | : | | : | : | : | | : | : | : | | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PNQVFAFLRSILVRVFPKLIWGNQRIFEIILKDLETFLKLSRYESFSLHYLMSNIKISEI 399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EWLVLGKRSNAKMCLSDFEKR-KQ-IFAEFIYWLYNSFIIPILQSFFYITESSDLRNRTV 457
                                                                                                                                                                                                                                                                                        400 EWLVLGKRSNAKMCLSDFEKR-KQ-IFAEFIYWLYNSFIIPILQSFFYITESSDLRNRTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FYRKSVWSKLQSIGIRQHLKRVQLRELSBAEVRQHREARPALLTSRLRFIPKPDGLRPIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                516 NLRKRFLIKMGSNKKMLVSTNQTLRPVASILKHLINEESSGIPFN-LEVYMKLLTFKKDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LKHRMFGRK-K-YFVRIDIKSCYDRIKQDLMFRIVKKKLKDPE-FVIRKYATIH-ATSDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATKNEVSEAFSYFDMVPFEK - - VVQLLSMKT - SDTLFVDFVDYWTKSSSEIFKMLKEHLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            777 VRKAFKSHVSTLTDDLQPYMRQFVAHLQETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           458 YFRKDIW-KLLCRPFITSMKMEAFEKINENNVRMDTQ-KTTLPPAVIRLLPKKNTFRLIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TVNKKDAKKFLNLSLRGFEKHNFSTSLEKTVINFENSNGIINNTFFNESKKR-M-PFFGF
7.9%; Score 678; DB 3; Length 988;
larity 26.4%; Pred. No. 1.37e-110;
Conservative 133; Mismatches 208; Indels 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ch 7.9%; Score 681; DB 3; Length 989 1 Similarity 26.3%; Pred. No. 3.12e-111; 129; Conservative 136; Mismatches 204; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-JAN-1998 (TREMBLREL. 05, CREATED)
01-JAN-1998 (TREMBLREL. 05, LAST SEQUENCE UPDATE)
01-JUN-1998 (TREMBLREL. 06, LAST ANNOTATION UPDATE)
TELOMERASE REVERSE TRANSCRIPTASE 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SCHIZOSACCHAROMYCES POMBE (FISSION YEAST).
EUKARYOTA; FUNGI; ASCOMYCOTINA; HEMIASCOMYCETES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              D DNA POLYMERASE.
989 AA; 116456 MW; FDE74202 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               989 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ULT. 5
013338 PRELIMINARY;
013338;
01-JAN-1998 (TREMBLREL. 05, CF
01-JAN-1998 (TREMBLREL. 05, LA
01-JUN-1998 (TREMBLREL. 06, LA
   7.98;
Similarity 26.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SVNMRSLD 813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             956 LLDTRTLE 963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN-972H-;
                                                                      129;
   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           400
                                                                          Matches
                                                                                                                                                                                                                                                                                        å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             음
                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ô
                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
```

```
34;
540 AWL---RRSPGVGCVPAAEHRLREEILAKFLHWLMSVYVVELLRSFFYVTETTFQKNRLF 596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361 FINEFEYNILPKDFLTGR-NRKNFQKKVKKYVELNKHE-LIHKNLLLEKINTREISHMQV 418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   : :::: :||: | | | : : | :|: :| :|: | | :| | | :| | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | : | | : : | : | | : : | | : : | | : : | | : : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 591 QVGQPKLFFATMDIEKCYDSVNREKLSTFLKTTKLLSSDFWIMTAQILKRKNNIVIDSKN 650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         894 LVTPHLTHAKTFLRTLVRGVPEYGCVVNLRKTVVNFPVEDEALGGTAFVQMPAHGLFPWC 953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |: ::| ::|::|::|::|::|486 FVRACLRRLVPPGLWGSRHNERRFLRNTKKFISLGKHAKLSLQELTW-KMSVRDCAWLRR 544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   : :||::|| ::|||::|
545 SPGVGCVPAAEHRLREEILAKFLHWLMSVYVVELLRSFFYVTETTFQKNRLFFRKSVWS 604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     532 KIVNSDRKTTKLTINTKLLNSHLMLKTLKNRMFKDPFGFAVFNYDDVMKKYEEFVCK-WR 590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          419 ETSAKHFYYFDHE-NIYVLWKLLRWIFEDLVVSLIRCFFYVTEQQKSYSKTYYYRKNIWD 477
                                                                                                                                                                          574 DLLKHRWFGRK-K-YFVRIDIKSCYDRIKQDLMFRIVKKKLKDPE-FVIRKYATIH-ATS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         630 DRATKNFVSEAFSYFDMVPFEK--VVQLLSMKT-SDTLFVDFVDYWTKSSSEIFKMLKEH
                                                                                                                                                                                                                                                                                                                              NLRKRFLIKQMGSNK-KMLVSTNQTLRPVASILKHLINEESSGIPFN-LEVYMKLLTFKK
                                                                                                                                                                                                                                                                                                                                                                                                  FITVNKKDAKKFLNLSLRGFEKHNFSTSLEKTVINFENSNGIINNTFFNESKKR-M-PFF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   605 KLQSIGIRQHLKRVQLRELSEAEVRQHREARPALLTSRLRFIPKPDGLRPIVNMDYVVGA
                                                                                                            458 YFRKDIW-KLLCRPFITSMKMEAFEKINENNVRMDTQ-KTTLPPAVIRLLPKKNTFRLIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            478 VIMKMSI-ADLKKETLAEVQEKEV-EEWKKSLGFAPGKLRLIPKKTTFRPI--MTF--NK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Match 5.1%; Score 439; DB 5; Length 1031;
Local Similarity 23.0%; Pred. No. 1.97e-60;
les 142; Conservative 168; Mismatches 261; Indels 47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
MEDLINE; 97274210.
LINGNER J., HUGHES T.R., SHEVCHENKO A., MANN M., LUNDBLAD V.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-JUL-1997 (TREMBLREL. 04, CREATED)
01-JUL-1997 (TREMBLREL. 04, LAST SEQUENCE UPDATE)
01-JAN-1998 (TREMBLREL. 05, LAST ANNOTATION UPDATE)
TELOMERASE SUBUNIT P123.
EUPLOTES AEDICULATUS.
EURARYOTAE; MITOCHONDRIAL EUXARYOTES; ALVEOLATA; CILIOPHORA; HYPOTRICHS; EUPLOTIDA; EUPLOTES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SCIENCE 276:561-567(1997).
EMBL; U95964; G2072336; -.
SEQUENCE 1031 AA; 122562 MW; 21A885CD CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT; 1031 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      805 GFSVNMRSLD 814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |: :: |:|:
954 GLLLDTRTLE 963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 6
ID 000939
AC 000939;
                                                                                                                                                                                                                                                                                                                              516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
```

<u>н</u>

S

ò 셤 ò 셤 ò 셤 ò 요 ò g ò

```
271 LSHLSRQSPKER-VLKFIIVILQKLLPQEMFGSKKNKGKIIKNLNLLLSLPLNGYLPFDS 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         659 PSQDTLILKLADDFLIISTDQQQVINIKKLAMGGFQKYNAKAN-RDKILAVSSQSDDDTV 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        330 LLKKLRLKDFRWLFIS-DIWFTKHNFENLNQLAIC-FISWLFRQLIPKIIQTFFYCTEIS 387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                444 KSNNEFRIIAIPCRGADEEEFTIYKENHK-NA-IQPTQKILEYLRNKRPTSF-TKIYSPT 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ouery Match 3.6%; Score 314; DB 3; Length 884;
Best Local Similarity 24.3%; Pred. No. 1.71e-35;
Matches 118; Conservative 122; Mismatches 202; Indels 44; Gaps
BENES V., BRUCKNER M., DELIUS H., DUBOIS E., DUSTERHOFT A.,
ENTIAN K.D., FLOETH M., GGFFEAU A., HEBLING U., HEUMANN K.,
HEUSS-NEITZEL D., HILBERT H., HILGER F., KLEINE K., KOTTER P.,
LOUIS E.J., MESSENGUT F., MEWES H.W., MIOSGA T., MOSTL D.,
MULLER-AGER S., NENTWICH U., OBERMAIRE B., PIRAVANNI E., POLL T.M.,
PORTETELLE D., PURNELLE B., RECHMANN S., RIEGER M., RINKE M.,
SCHARFE M., SCHERENS B., SCHOLLER P., SCHWAGER C., SCHWARZ S.,
UNDERNODELS F., VOET M., VOLCKAERT G., VOSS H., WANBUIT R., WEDLER WEDLER H., ZIMMERMANN F.K., ZOLLNER A., HANI J., HOHEISEL J.D.;
NATURE 387:0-0(0).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      501 QIADRI-KEFKQRLLKKFNNVLPELYFMKFDVKSCYDSIPRMECMR-ILKDALKNENGFF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       559 VRSQY-FFNTNT-G-VLKLFNV-VNASRVPKPY-ELYIDNVR-TVHLSNQDVIN---VV-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              E---M-EIF-K-T---ALWVEDKCYIREDGLFQGSSLSAPIVDLVYDDLLEFYSEFKAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            822 EASSGLFDVFLRFMCHHAVRIRGKSYVQCQGIPQGSILSTLLCSLCYGDM-E-NKLF-AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             388 STVTIVYF-RHDTWNKLITPFIVEYFKTY-LVE-NNV-CRNHNSYTLSNFNHSKMRIIPK
                                                                                                                                                                                                                                                                                  SUBMITTED (MAR-1995) TO EMBL/GENBANK/DDBJ DATA BANKS
                                                                                                                                                                                                                                                                                                                                                     WATERSTON R.;
SUBMITTED (FEE-1995) TO EMBL/GENBANK/DDBJ DATA BANKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                              TO EMBL/GENBANK/DDBJ DATA BANKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               884 AA; 102662 MW; 1A94320F CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ż
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
STRAIN-S288C (AB972);
CHERRY J.M.;
SUBMITIED (JUL-1997) TO
EMBL; U20618; G662136;
                                                                                                                                                                                                                             SEQUENCE FROM N.A.
STRAIN-S288C (AB972);
                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
STRAIN-S288C (AB972);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      718 IQFCAM 723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      939 TAFVQM 944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LT 9
Q69118
Q69118;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
ID 96
AC 96
                     ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
STRAIN-S288C (AB972);
MEDLINE; 97313267.
JOHNSTON M., HILLIER L., RILES L., ALBERMANN K., ANDRE B., ANSORGE W.,
                                                                                                                                                                                                                                                                                                                                      888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              711 QPVIN-ICQYNYINFNGKFYKQTKGIPQGLCVSSILSSFYYATLEESSLGFLRDESMNPE 769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                        651 FRKKEMKDYFRQKFQKIALEGGQYPTLFSVLENEQNDLNAKKTLIVEAKQRNYFKKDNLL
                                                                                                                             770 NPNVNLLMRLTDDYLLITTQENNAVLFIEKLINVSRENGFKFNMKKLQTSFPLSPSKFAK
                                                                                                                                                                                                                                                                 -GTAFVQMPAHGL-F-PWCGLLLDTRTLEVQSDYSSYARTSIRASLTFN-RGFKAGRNMR
                                                                                                                                                                                                                                                                                                                   KKLKSFL-MNNITHYFRKTITTEDFANKTLNKLFISGGYKYMQCAKE--YKDHFKKNLAM
                                                                                                                                                                                            830 YGMDSVEEQNIVQDYCDWIGISIDMKTLALMPNIN-LRIEGILCTLNLNMQTKKASMWLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-JAN-1998 (TREMBLREL. 05, CREATED)
01-JAN-1998 (TREMBLREL. 05, LAST SEQUENCE UPDATE)
01-JAG-1998 (TREMBLREL. 07, LAST SEQUENCE UPDATE)
TELOMERASE CATALYTIC SUBUNIT (FRAGMENT).
MUS MUSCULUS (MOUSE).
EUKARYOTA: METAZOA: CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 424; DB 11; Length 67;
Pred. No. 2.25e-57;
10; Mismatches 6; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BANKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01, LAST SEQUENCE UPDATE)
07, LAST ANNOTATION UPDATE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                L8543.12.
SACCIAROMYCES CEREVISIAE (BAKER'S YEAST).
EUKARYOTA; FUNGI; ASCOMYCOTINA; HEMIASCOMYCETES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DRISSI R., CLEVELAND J.L.;
SUBMITTED (OCT-1997) TO EMBL/GENBANK/DDBJ DATA :
EMBL; AF029235; G2605903; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NON_TER 1 1
NON_TER 67 67
SEQUENCE 67 AA; 8368 MW; E2A06F2B CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               67 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              884 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CREATED)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                      1054 FLRVISDTASLCYSILKA 1071
                                                                                                                                                                                                                                                                                                                                                                                    946 SSMIDLEVSKIIYSVTRA 963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-NOV-1996 (TREMBLREL. 01, 01-NOV-1996 (TREMBLREL. 01,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity 76.1%;
Matches 51; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-NOV-1996 (TREMBLREL. 01,
01-AUG-1998 (TREMBLREL. 07,
CHROMOSOME XII COSMID 8543.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RLRFIPK 648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 RLRFIPK 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LT 8
Q06163
Q06163;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LT 7
035432
035432;
                                                                                                                                        829
                                                                                                                                                                                                                                                                                938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       642
                                                                                                                                                                                                                                                                                                                   889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
```

SETTRE REPORTED TO SET THE REPORT OF THE REP

8 ð 셤 ò

706

608

AXX REPRESENTATION OF THE PROPERTY OF THE PROP

321 VGRQHHAGPPSTSRPPRPWDTPCPPV 346

ö

```
91 GPPPTRSGAAAQ-RTHRRPPGCPRSARNPGCPRTWRR--R-SGAQRGHPPPGAGQRPSGP 146
                                                                                                                                                                                                                                                                                           359 SAPPPPPRSAPSTGRQPPPLSSSRAVSNPP--APPPAIPGRSAPALPPLGNASRISTPP 416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                305 AANKKRPPPPPP-PSRR---NRG-KPPIGNGSSNSSLPPPPPPPPRSNAAG-SIPLPPQGR 358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CONNOR R., CHURCHER C.M., BARRELL B.G., RAJANDREAM M.A., WOOD V.; SUBMITTED (SEP-1997) TO EMEL/GENBANK/DDBJ DATA BANKS.
- SIMILARITY: TO YEAST LAS17.
EMBL; AF038575; GZ708709; -
EMBL; Z98980; E339884; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 143; DB 3; Length 574;
Pred. No. 2.85e-05;
41; Mismatches 53; Indels 10;
                                                                                                                                                                                                                                                   <u>,</u>
                                                                                                                                                                                                                       Score 147; DB 14; Length 296;
Pred. No. 7.18e-06; .
20; Mismatches 33; Indels
                                                                                                                            361 366 POLY-PRO.
248 248 L -> V (IN STRAIN JS21).
574 AA; 59605 MW; 9E84D37C CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN-JS21;
ZANKEL T.C., OW D.W.;
SUBMITTED (DEC-1997) TO EMBL/GENBANK/DDBJ DATA BANKS.
                                                                                                                                                                                                                                                                                                                                                                                                                  036027.
01-JUN-1998 (TREMBLREL. 06, CREATED)
01-JUN-1998 (TREMBLREL. 06, LAST SEQUENCE UPDATE)
01-JUN-1998 (TREMBLREL. 06, LAST SEQUENCE UPDATE)
WISKOTT-ALDRICH SYNDROME PROTEIN HOMOLOG 1.
SCHIZOSACCHAROMYCES POMBE (FISSION YEAST).
EUKARYOTA; FUNGI; ASCOMYCOTINA; HEMIASCOMYCETES.
01-NOV-1996 (TREMBLREL. 01, CREATED)
01-NOV-1996 (TREMBLREL. 01, LAST SEQUENCE UPDATE)
01-NOV-1996 (TREMBLREL. 01, LAST ANNOTATION UPDATE)
                                                                                                                                                                                                                                                                                                                                          147 IGGRPAAPGAPGTPAAPGPGGGAAVPSGATPHPERGSGPAD 187
                                                           VIRIDAE; DS-DNA ENVELOPED VIRUSES; HERPESVIRIDAE;
GAMMAHERPESVIRINAE.
                                                                                                                                                                                               296 AA; 31393 MW; D17CEF6F CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POLY-PRO.
POLY-PRO.
POLY-PRO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VPTPP-SLPPSAPPSLPPSAPPSLPM 441
                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                     HYPOTHETICAL PROTEIN (FRAGMENT).
HUMAN HERPESVIRUS TYPE 4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 1.7%;
Best Local Similarity 28.8%;
Matches 42; Conservative
                                                                                                                                                                                                                      Query Match
Best Local Similarity 38.6%;
Matches 39; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                    SEQUENCE FROM N.A.
                                                                                                                   87284169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN=972;
                                                                                                                                                                                               SEQUENCE
                                                                                                                 MEDLINE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                  NON_TER
                                                                                                                                                                                                                                                                                                                                                                                            JT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  417
                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                움
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
```

```
PROKARYOTA; GRACILICUTES; SCOTOBACTERIA; FACULTATIVELY ANAEROBIC RODS;
ENTEROBACTERIACEAE.
                                                                                                                                                                                                                                                                                                                                                92 QGGNQSQG-PPPHPGKPERPPP-QGG-NQSHRPPPPP-GKPER-PPPQGGNQSQG-P-PP 144
                                                                                                                                                                                                                                                                                                                                                                                   145 HPGKPEGPPPQEGNKSRSARSPPGKPQGPPQQEGNKPQGPPPPGKPQGPPPPGGNPQQPQ 204
                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                           HOMO SAPIENS (HUMAN).
EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
EUTHERIA; PRIMATES.
                                                                                                                                                                                                                                                                                                     6
                                                                                                                                                                                         AZEN E.A., AMBERGER E., FISHER S., PRAKOBPHOL A., NIECE R.L.;
AM. J. HUM. GENET. 58:143-153(1996).
EMBL; S80916; G1911492; -.
                                                                                                                                                                                                                                                                       Query Match 1.6%; Score 142; DB 4; Length 234; Best Local Similarity 28.2%; Pred. No. 4.02e-05; Matches 40; Conservative 41; Mismatches 52; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
STEIBL H.D., SIDDAVATTAM D.;
SUBMITTED (AUG-1996) TO EMBL/GENBANK/DDBJ DATA BANKS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LT 12
046612
046612
01-NOV-1996 (TREMBLREL. 01, CREATED)
01-NOV-1998 (TREMBLREL. 01, LAST SEQUENCE UPDATE)
01-JUN-1998 (TREMBLREL. 06, LAST SEQUENCE UPDATE)
11-1222 GENE ORF-8
ENTEROBACTER AGGLOMERANS.
                                       04, CREATED)
04, LAST SEQUENCE UPDATE)
04, LAST ANNOTATION UPDATE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0B54A420 CRC32;
                                                                                                                                                                                                                                               SEQUENCE 234 AA; 23656 MW; B5920075 CRC32;
               234 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE; 96422758.
STEIBL H.D., SIDDAVATTAM D., KLINGMUELLER
PLASMID 34:223-228(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
STEIBL H.D.;
THESIS (1995), UNIVERSITAET BAYREUTH.
EMBL; X78052; G459248; -.
EMBL; X81893; E258949; -.
               PRT;
                                                     (TREMBLREL. 04, LAS' (TREMBLREL. 04, LAS' PROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                      205 APPAGKPQGPPPPPQGGRPPRP 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                276 AA; 31718 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
STRAIN-EKLEBERGER, 1983;
MEDLINE; 95255664.
STEIBL H.D., LEWECKE F.M.;
GENE 156:37-42(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                       : |: | : || :||||| 317 SHPSVGRQHHAGPPSTSRPPRP
               PRELIMINARY;
                                          (TREMBLREL.
                                                                                                                                                               SEQUENCE FROM N.A. MEDLINE; 96108975.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                       01-JUL-1997
01-JUL-1997
01-JUL-1997
PAROTID '0'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
LT 11
000600
000600;
                                                                                                                                                                                                                                    NON_TER
                                                                                                                                                                                                                                                                                                                                                                                   엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                      ద
                                                                                                                                                                                                                                                                                                                                                                                                              ò
```

```
Search completed: Thu Dec 24 07:59:53 1998 Job time: 479 secs.
                                                                                                                                                                                RESULT
                                                                                   g
                                                                                                        ò
                                                                                                                            g
                                                                                                                                                 à
                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 d
                                                               ò
                        Ġ
                                                                                                                                                                                                                                                                                                                                                                                                                                             ë,
                                                       :|| :::: | | || : :| | : :| || : :| || 585 VIETIFOKNNILFFYRKSVWSKLQSIGIRQHLKRV-QLRELSEAEVRQHREARPALLISRL 643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                202 RPWSTASSDCSVGRTGIAPRGPAT-SPRPSRSPAAQDRSRPARSAPGPAASPGGPGAWTH 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           42 ITELALERRR-FGYRR-IWQLLRREGLHVNHKRVYRLYHLSGLGVKRRRR-RKGLATERL 98
                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                        Gaps
                                                                                                                                                                                                                                                                                           HB9.
HOMO SADIENS (HUMAN).
EUKARYOTA; METAZOA; CHORDATA; VERTEBRATA; TETRAPODA; MAMMALIA;
EUTHERIA; PRIMATES.
                                                                                                                                                                                                                                                                                                                                                                                                                                              ë.
                        .
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
STRIN-NRRL2338.
SALAH-BEY K., DOUMITH M., MICHEL J.M., HAYDOCK S., CORTES J.,
LEADLAY P.F., RAYNAL M.C.;
SUBMITTED (JUL-1997) TO EMBL/GENBANK/DDBJ DATA BANKS.
EMBL, 114332; E1228185; -.
SEQUENCE 373 AA; 40872 MW; 781BECGD CRC32;
   Length 276;
                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
1.6%; Score 136; DB 4; Length 316;
Best Local Similarity 30.9%; Pred. No. 3.03e-04;
Matches 21; Conservative 20; Mismatches 24; Indels
Score 141; DB 2; Length 276
Pred. No. 5.65e-05;
23; Mismatches 30; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SACCHAROPOLYSPORA ERYTHRAEA (STREPTOMYCES ERYTHRAEUS)
PROKARYOTA; FIRMICUTES; ACTINOMYCETALES; NOCARDIOFORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           054226;
01-JUN-1998 (TREMBLREL. 06, CREATED)
01-JUN-1998 (TREMBLREL. 06, LAST SEQUENCE UPDATE)
01-JUN-1998 (TREMBLREL. 07, LAST ANNOTATION UPDATE)
POLYKETIDE SYNTHASE (FRAGMENT).
                                                                                                                                                                   01-NOV-1996 (TREMBLREL. 01, CREATED)
01-NOV-1996 (TREMBLREL. 01, LAST SEQUENCE UPDATE)
01-JUN-1998 (TREMBLREL. 06, LAST ANNOTATION UPDATE)
HOMEOBOX PROTEIN (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                             70 129 HOMEOBOX.
112 121 H-T-H MOTIF.
316 AA; 34713 MW; 1531E766 CRC32;
                                                                                                                                                  316 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Z
                                                                                   99 PLL-RPAAPNLTWSDDFVMDALATGRRIK 126
                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
  Query Match 1.6%;
Best Local Similarity 33.7%;
Matches 30; Conservative
                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                     MEDLINE; 91305125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         261 PARPREQA 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             281 PGRTRGPS 288
                                                                                                                                                                                                                                                                            TISSUE-TONSIL;
                                                                                                                                                                                                                                                                                                                                                                      NON_TER
DNA_BIND
DNA_BIND
SEQUENCE
                                                                                                                                      13
099076
099076;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           T 14
054226
                                                                                                                                    ð
                                                                                   셤
                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

```
Gaps 11;
                                   Gaps 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MURINE HERPESVIRUS 68.
VIRUSES; DSDNA VIRUSES, NO RNA STAGE; HERPESVIRIDAE; GAMMAHERPESVIRINAE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    342 PPP-ELGPGSPTSPAPSRAGARIPDLPGPLPSWGPDPRPPRPPPELGPGSPTSPAPSRAG 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                401 ARIPDLPGPLPSWGPDPRPPRPPELGP-GSPT-SPAPSRAGARIPRPSRPPFELGP--G 456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        243 PRRRAA-NRRG-AAPAPGIAPG-AAHG-HRRG-AARRARDRRRRGGRGRRRGGQPRPGG 297
                                                                                                                 298 L-RRARPPR-RGPPRRRPRAVGTSRPPRQAGG-AGH-R-ARHRRTA-GRGQGAARTHAQR 351
                                                                                                                                                                                                         275 QGSWAHPGRTRGPSDRGFCVVSPARPAEEATSLEGALSGTRHSHPSVGRQHHAGPPSTSR 334
Score 140; DB 2; Length 373;
Pred. No. 7.93e-05;
27; Mismatches 46; Indels 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN-WUMS;
MEDLINES, 973-86649.
WINGIN H.W. IV, LATREILLE P., WAMSLEY P., HALLSWORTH K., WECK
DAL CANTO A.J., SPECK S.H.;
J. VIROL. 71:5894-5904(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 135; DB 14; Length 585;
Pred. No. 4.23e-04;
37; Mismatches 68; Indels 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN-WUMS;
LATREILLE P., WAMSLEY P., WATERSTON R.H.;
SUBMITIED (APR-1997) TO EMBL/GENBANK/DDBJ DATA BANKS.
EMBL; U97553; G2317934; ---
EMBL; WYPOTHETICAL PROTEIN.
SEQUENCE 585 AA; 60160 MW; B35C72E5 CRC32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                310 ALSGTRHSHPSVGROHHAGPPSTSRPPRPMDTPCPPVYAETKH 352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SPRFPRPSRPP--PELGPGSPDLPGPLPSWG-PDPPTFPAPSR 496
                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-JAN-1998 (TREMBLREL. 05, CREATED)
01-JAN-1998 (TREMBLREL. 05, LAST SEQUENCE UPDATE)
01-JAN-1998 (TREMBLREL. 05, LAST ANNOTATION UPDATE)
HYPOTHETICAL 60.2 KD PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                   585 AA
                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
Query Match
Best Local Similarity 32.3%;
Matches 40; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1.6%;
Local Similarity 27.6%;
les 45; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     [2]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                            352 PGRP 355
                                                                                                                                                                                                                                                                                                                         335 PPRP 338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAMMAHV. M6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                           LT 15
041935
041935;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        457
```

THIS PAGE BLANK (USPTO)

1.54e+00 1.54e+

osteogenic prot osteogenic pro-

OP-2.

OP-2. hippocampal ost osteogenic prot beet chitinase

prot

osteogenic OP-2-PP. osteogenic osteogenic

osteogenic prot

_

```
Predicted amino acid sequece of the infectious bovine rhinotracheitis virus (IBRV) gill polypeptide
Infectious bovine rhinotracheitis virus; IBRV; gill gene;
gill polypeptide; glycoprotein III; Bovine Herpesvirus type 1;
IBRV(NG)dltkdlgIII; IBR disease vaccine;
Infectious bovine rhinotracheitis disease vaccine.
Infectious bovine rhinotracheitis virus (IBRV)/Bovine Herpesvirus type 1
BP-316658-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  They gill gene from the status of the first 21 AAs are hydrophobic glycoproteins of other herpesviruses. The first 21 AAs are hydrophobic glycoproteins of other herpesviruses. The first 21 AAs are hydrophobic with the exception of Arg at position 6. This sequence could correspond to a signal peptide for membrane insertion and may well be removed during translation and transport. AAs at positions 481-498 are strongly hydrophobic and have the characteristics of a membrane-spanning region. The carboxy terminal 11 AAs have a basic charge and may function as a cytoplasmic anchor sequence. Four potential glycosylation sites are present in the region between the putative signal sequence and the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             37 pspsptetessagttgasaprrptgpdatpe-dstpvllrpwgrrsrrpcpsttrpltns 95
   Murine osteogenic pro
Murine OP-2.
Human OP-2 protein.
Full length sequence
                                                                  Human osfeogenic prot
Osteogenic protein OP
Osteogenic protein ho
                                                                                                                                                                                                                                                                                                                                                                        Sequence A encoded by
Sequence encoded by n
Morphogen hOP2 full 1
Mycobacterium tubercu
                                                                                                                                                                                                                                                                                                                                                                                                                                            Mycobacterium tubercu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 134; DB 1; Length 509;
Pred. No. 3.67e-01;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Infectious bovine rhinotracheitis virus
- which does not produce any antigenic IBRV gIII
polypeptide(s) as result of deletion and/or insertion in
                                                                                                                                                                                                                                        hOP2-PP
                                                                                                                                                                      Human
                                                                                                                                                                                                                                                      Human
                                                                                                                      Human
                                                                                                                                                                                                         Human
                                                                                                                                                                                                                       Human
                                                                                                                                                                                                                                                                                                         Human
                                                                                                                                                                                                                                                                                                                          Human
                                                                                                                                                                                                                                                                                                                                          Human
                                                                                                                                                                                                                                                                                                                                                            Sugar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28; Mismatches
                                                                                                                                                        hOP2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24-MAY-1989.

02-NOV-1988; 118266.

03-NOV-1987; US-116197.

(BAXU) Baylor College Med (NOVA-).

Kit M, Kit S, Otsuka H;

WPI; 89-152220/21.

N-PSDB; N92357.
R27292
R50239
W40192
                                                W36855
W44315
K560578
K50578
R27291
R47292
R447292
R3410
W00238
R46732
R6732
R6733
R6733
R76733
                                                                                                                                                                                                                                                                                      R85760
R50200
W16366
                                                                                                                                                                                                                                                                                                                                     R33907
R28150
P60623
P70350
R33933
W31855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .T 1
P91060 standard; protein; 509 AA.
P91060;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Match 1.6%;
Local Similarity 29.5%;
les 31; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12-APR-1990 (first entry)
   402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             transmembrane sequence.
                                                                                                                                                                                                                                                                    402
402
402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           509 AA
 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best
 0010845978888888888888444444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                    protein - protein database search, using Smith-Waterman algorithm
                                                                                                                                                    (HE)
                                                                                                                                                                                                                                                                                                                                   514.262 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3.67e-01

5.36e-00

4.60e-00

4.60e-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4.60e+00
4.60e+00
4.60e+00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a-geneseq32
i.part1 2.part2 3.part3 4.part4 5.part5 6.part6 7.part7
8.part8 9.part9 10.part10 11.part11 12.part12 13.part13
14.part14 15.part15 16.part16 17.part17 18.part18
24.part19 20.part20 21.part21 22.part22 23.part23
24.part24 25.part25 26.part26 27.part27 28.part28
29.part29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                       HASGORCVLLRTWEALAPAT......TALEAANPALPSDFKTILD 1154
                                                                                                                                                                                                                                                                                                                     MasPar time 36.31 Seconds
                                                                                                                                                                                                                Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          mOP2-PP prepro form m
Bone morphogenic prot
mOP2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Osteogenic protein mO
Mouse osteogenic prot
Mouse osteogenic prot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Fragmented human NF-H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Prepro form of human
Mouse OP-2 protein.
Mouse osteogenic prot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mouse osteogenic prot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Full length sequence Murine OP-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Predicted amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        pro-OP-2-PP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mean 39.946; Variance 185.025; scale 0.216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Murine OP-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Murine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mOP-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         131922 seqs, 16180660 residues
                                                                                                                                                                                                                                                                                                                                                                                                      (1-1154) from US08951733.pep
8624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              summaries
                                                                                                                                                                                                                                                                                                                   Thu Dec 24 07:36:48 1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P91060
W18664
R23846
W40193
W44314
R85759
R54938
R33908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R50201
R47253
W00239
W36856
R57974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R33411
R51646
W23144
R47293
                                                                                                                                                                                                                                                                                                                                                                                      >US-08-951-733-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Minimum Match 0%
Listing first 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29
16
10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7
10
10
10
10
10
                                                                                                                                                                                                                                                                                                                                                      not generated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Post-processing:
                                                                                                                                                                                                                                                                                                                                                   Tabular output
                                                                                                                                                                                                                                                                                                                                                                                                      Description:
Perfect Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Statistics:
                                                                                                                                                                                                                                                                                  MPsrch_pp
                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Database:
                                                                                                                                                                                                                                                                                                                     Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    110
110
110
110
110
110
110
110
110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Result
```

ŝ

Gaps

ŝ

41; Indels

<del>::</del>

dental abnormality;

96 296

g

à

ò

```
New Osteogenic polypeptide(s) and their dimeric proteins - useful in association with a matrix for bone reconstitution after orthopaedic and plastic surgery.

Disclosure; 51-53; 69pp; English.

The sequence encodes the prepro form of human osteogenic polypeptide-2 (hOP2-Pp). The protein is useful as a subunit of osteogenic proteins capable of endochondral bone formation, and allogenic and xenogenic implants in mammals. When implanted with a matrix, the polypeptide locally induces the full developmental cascade of endochondral bone formation and bone marrow differentiation. This can be used for optimal predictable bone formation to correct, egalocatized, and to treat non-union fractures. The polypeptide also have dental and periodorhal applicns, and may be used for cartilage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | :| ||: : |||| : |:|||| | :: ||
194 GPPLYQLGAATQA-RPPPHASGPRRRLGCERAWNHSVREAGVPLGLPAPGARRRGGSASR 252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12 glalcalggggggglrppp-gc-pgrrlg-ardrdvg-reilavlglpgr-prprappaas 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MOUSE OP-2 protein.
Mouse OP-2 protein.
Osteogenic protein; OP-2; bone morphogenic protein; OP/BMP family; chronic renal failure; renal therapeutic agent; disease; diabetes;
                                                                                                                                                                                                                                                                     [3..18]
label* cleavage site for signal peptide removal
                                                                                                                                                                                                                                                                                                                                         to form mature protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repair, eg in osteoarthritis treatment. See also W09105802. Sequence 399 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           297..399
/label= conserved seven cysteine skeleton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 118; DB 1; Length 399
Pred. No. 4.60e+00;
13; Mismatches 19; Indels
                                                                                                                     prepro sequence; implant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            conserved six cysteine skeleton
                                                                05-NOV-1992 (first entry)
Prepro form of human osteogenic polypeptide-2.
Human osteogenic polypeptide-2; prepro sequence; impleendochondral bone formation; skeletal abnormality; der non-union fracture; cartilage repair; osteoarthritis; periodontal applicn.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (CREA-) CREATIVE BIOMOLECULES INC.
Kuberasampath T, Oppermann H, Ozkaynak E, Rueger DC;
WPI: 92-167153/20.
N-PSDB; N24522.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          truncated protein 'hOP2-S'
                                                                                                                                                                                                                                                                                                                                                                                                                                     truncated protein 'hOP2-P'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /label= truncated protein \hOP2-R'
                                                                                                                                                                                                                                                                                                                                                                                        /label= mature protein \hOP2-A'
                                                                                                                                                                                                                                                                                                                                      /label- cleavage site
                                                                                                                                                                                                                                          Location/Qualifiers
RESULT 3
ID R23846 standard; Protein; 399 AA.
AC R23846;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          W40193 standard; Protein; 399 AA. W40193;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 1.4%;
Best Local Similarity 39.7%;
Matches 25; Conservative
                                                                                                                                                                                                                                                                                                                                                          .399
                                                                                                                                                                                                                                                                                                                                                                                                               399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 399
                                                                                                                                                                                                                                                                                                                ..261
                                                                                                                                                                                                                                                                                                                                                                                                                                                         . 399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note= "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    399
                                                                                                                                                                                                                                                                                                                                                                                                                                        /label= 1
267..399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /label=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /label=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   30-APR-1992.
18-OCT-1991; U07635.
18-OCT-1990; US-599543.
                                                                                                                                                                                                                                                                   cleavage_site
                                                                                                                                                                                                                                                                                                                cleavage_site
                                                                                                                                                                                                                    Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             W09207073-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                67 rlp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             253 SLP
                                                                                                                                                                                                                                                                                                                                                               protein
                                                                                                                                                                                                                                                                                                                                                                                                               protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
ID W4
AC W4
DT 06
DE MC
KW O6
KW C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           prods. for the diagnosis, prevention and treatment of associated diseases, e.g. cancer or neuro:degenerative disease.

Claim 22; Fig 9; 123pp; English.

Claim 22; Fig 9; 123pp; English.

Wi8663 and Wi8664 are +2 and +1 frameshift mutations, respectively, of a sequence comprising fragments of the coding sequence of the human neurofilament subunit NF-H gene corresponding to nucleotides.

Claim of the Wild-type NF-H gene. This region contains GACAG motifs.

Frameshift mutants of the tau, ubiquitin, apolipoprotein E.

Frameshift mutants of the tau, ubiquitin, apolipoprotein E.

Microtubule-associated protein 2 (MAP-2), neurofilament subunit I. M

and H and amyloid A4 genes are claimed. All these genes share a common GAGAN motif (N-A, G, Cor T), which is the site of common GAGAN motif (N-A, G, Cor T), which is the site of common GAGAN motifies used for the production of antibodies, and small neuroscial sequences derived from frameshift mutants are used in the
                                                                                                                                                                                                                                                         Fragmented human NF-Will gene +1 frameshift mutant product.
Frameshift mutation product; GAGA motif; somatic mutation; diagnosis; detection; antibody; probe; cancer; neoplasia; neurodegenerative; Parkinson's; Alzheimer's disease; Pick's; Huntington's disease; Down's syndrome; frontal lobe dementia; progressive supranuclear palsy; PSP; amyotrophic lateral sclerosis; multiple sclerosis; MS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                diseases, e.g. Parkinson's disease, Alzheimer's disease, Down's syndrome, trontal lobe dementia (Pick's disease), progressive supranuclear palsy (PSP), amyotrophic lateral sclerosis, Huntington's disease, multiple sclerosis, and other degenerative diseases such as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   228 aggplry-gravrargprdarrgaapgrgarsatpgagaparghrarapaprrrgpaarg 286
239 PAPGARRRGGSASRS-LPLPKRPR-RGAAPEPERTPVGQGSWAHPGRTRGPSD-RGFCVV 295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  232 AGVPLGLPAPGARRRGGSASRSLPLPKRPRRGAAPEPERTPVGQGSWAHPGRTRGPSDRG 291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              diagnosis, prevention and treatment of cancer and neurodegenerative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Use of mutant genes having frame:shift mutation(s) - for developing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ٠,
ا
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note= "X corresponds to a stop codon in the accompanying DNA file, T69796"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        129..135
/note= "antigenic peptide used fro antibody
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 386;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                292 FCVVSPARPAEEAISLEGALSGTRHSHPSVGRQHHAGPPSTSRPPRP 338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  grgggpragalraggrggargpaeegagagaggvrlpaapppgrggra 333
                                               tpppappedgrpggagnasrdgrpsggggrprpprpskappkerkw 140
                                                                          SPARPAEEATSLEGALSGTRHSHPSVGRQHHAGPPSTSRP-PRPW 339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pred. No. 5.36e+00;
26; Mismatches 50;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cardiovascular disease and rheumatoid arthritis.
Sequence 386 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 117; DB 22;
Pred. No. 5.36e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Grosveld FG, Van Leeuwen FW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              02-0CT-1995; GB-020080.
11-JAN-1996; US-009832.
(ROYA-) ROYAL NETHERLANDS ACAD ARTS & SCI.
                                                                                                                                                                                                                                                                                                                                                                                                               cardiovascular; rheumatoid arthritis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                        W18664 standard; Protein; 386 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (UYRO-) UNIV ROTTERDAM ERASMUS. (UYUT-) UNIV STATE UTRECHT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1.4%;
llarity 28.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       production
                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1..387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           02-OCT-1996; IB1106.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best_Local Similarity
Matches 30; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Burbach JPH, Grosv
WPI; 97-226235/20.
N-PSDB; T69796.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc difference
                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO9712992-A2
                                                                                                                                                                                                                                       24-JUL-1997
```

peptide

9

Gaps

; 9

Query Match

g ŏ a à

287

Length 399;

ᠬ

US-08-951-733-20.rag

```
Mus musculus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        254 LP 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    69 db 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cultures.
                                                                                                                                                                                                                                                                                                                            Rueger DC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Preatment of chronic renal failure - using an osteogenic protein/bone morphogenetic protein renal therapeutic agent or morphogen or renal mesenchymal progenitor cells morphogen or renal mesenchymal progenitor cells

Disclosure: Page 68-69: 113pp: English.

This sequence represents the mouse osteogenic protein, Op-2. This protein is used in a method for the treatment of a mammal having, or at risk of, chronic renal failure which comprises administering an osteogenic protein/bone morphogenetic protein (OP/BMP) renal therapeutic agent or morphogen. The method can be used for treating e.g. chronic renal failure, end-stage renal disease, chronic diabetic ephropathy, diabetic renal hypertrophy, hypertensive independent of a patient allowerulonephritis, hereditary nephritis, renal dysplasia, or a patient efflicted with e.g. glomerular hypertrophy, tubular hypertrophy, glomerulosclerosis, tubulointerstitial sclerosis or renal fibrosis. Such therapeutic agents can prevent, inhibit or delay the progressive loss of filtration rate (GFR) which slowly but inevitably leads to the need for common and the replacement, therapy.
nephropathy; glomerulopathy; hypertrophy; sclerosis; nephritis; mouse; dysplasia; fibrosis; glomerular filtration rate; GFR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12 glalcalggghgprpp-htc-pqrrlg-arerrdmgreilavlglpgr-prpragpaaar 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12; Mismatches 22; Indels 4; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      W44314;
27-MAY-1998 (first entry)
Mouse osteogenic protein OP2.
Mouse; osteogenic protein; subunit; endochondral bone formation;
dimeric; recombinant protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 399;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 118; DB 29;
Pred. No. 4.60e+00;
                                                                                                                                                                     18..263
/label= propeptide
264..402
/label= 0p-2
                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                W44314 standard; Protein; 399 AA.
                                                                                                                  1..17
/label= signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 1.4%;
Best Local Similarity 38.7%;
Matches 24; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-841646.
US-179406.
US-232630.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-315342.
US-422613.
US-422699.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-569920.
US-579865.
US-599543.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-483913
                                                                                                                                                                                                                                                                                                                                                                                                                                  Cohen CM, Sampath KT;
WPI; 97-558690/51.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       447570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     USS714589-A.
03-FEB-1998.
23-MAY-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    08-APR-1988;
15-AUG-1988;
23-FEB-1989;
17-OCT-1989;
17-OCT-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20-AUG-1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              07-SEP-1990;
18-OCT-1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        22-FEB-1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     254 LP 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            69 db 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                            Peptide
                                                                                                                                                                        Peptide
                                                                                                                                                                                                                                    Protein
                                                               Was sp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
NAME OF THE PROPERTY OF THE PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            윰
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ID OCH THE STAND TO SERVICE OCH THE SERVICE OC
```

```
The present sequence represents the present invention describes methods used in the present invention. The present invention describes methods to selectively extracting an osteogenic protein (OP) from a mixture. The method comprises: (a) exposing the mixture to an antibody that specifically binds OP, separating the resulting antibody-protein complex from the mixture, and dissociating the complex. In the methods OP comprises a pair of oxidised subunits that are disulphide-bonded to form a dimer, and one of the subunits has an amino acid (aa) sequence sufficiently homologous to residues 335-431 of a 431 aa protein designated OPS, sequence given in the specification. In dimeric form OP is capable of inducing cartilage and endochondral bone formation in a mammal when disposed within a matrix implanted in the mammal. The methods are used for recovering the recombinant proteins from cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human; osteogenic protein; hOP-1; murine; mOP-1; TGF-beta superfamily; transforming growth factor-beta; dimer; antibody; epitope; hippocampus; purification; implantable osteogenic device; bone formation; cranofacial; anomaly; skeletal; dental; endochrondral bone formation; oranofacial; non-union fracture; cartilage repair; osteoarthritis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12 glalcalggghgprpp-htc-pgrrlg-arerrdmgreilavlglpgr-prpragpaaar 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                 Extraction of osteogenic protein from mixture - using antibodies specific for novel polypeptide chains useful as subunit(s) of dimeric osteogenic protein(s)
Disclosure; Column 137-140; 127pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note= "Mature mOP-2, also designated mOP2-Ala, claim 5" 303..399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 118; DB 29; Length 399;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. 4.60e+00;
12; Mismatches 22; Indels
                                                                                                                                                                                                                                                                              (STYC ) STRYKER CORP.
Kuberasampath T, Oppermann H, Ozkaynak E, Pang RHL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "mOP-2 peptide, claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "mOP-2 peptide, claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1..260
/note= "Prepro-peptide"
261..399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .T 6
R85759 standard; Protein; 399 AA.
R85759;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            / Match 1.4%;
Local Similarity 38.7%;
nes 24; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19-JUN-1996 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note= "m
17..260
18-OCT-1990; US-600024.
18-OCT-1990; US-616374.
04-DEC-1990; US-61849.
04-DEC-1991; US-61988.
22-FEB-1991; US-60162.
20-DEC-1991; US-60162.
28-JAN-1992; US-147023.
23-MAY-1995; US-447570.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US5468845-A.
21-NOV-1995.
08-APR-1988; 179406.
08-APR-1988; US-179406.
15-AUG-1988; US-232630.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note=
                                                                                                                                                                                                                                                                                                                                                                        WPI; 98-158353/14.
N-PSDB; V15217.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  399 AA;
```

4;

```
Ŗ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-APR-1993.
28-AUG-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                254 LP 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO9305751-A
                                                                                                                                                                                                                                                                                                                                                                       69
                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                       db 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   induced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              region
                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                  Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       88888888888
                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                              Antibodies with osteogenic protein binding specificity - used in purification of osteogenic proteins, and as antigenic proteins buildication of osteogenic proteins, and as antigenic proteins. Disclosure; Column 139-42; 129pp; English.

This sequence represents the murine osteogenic protein, moP-2. mOP-2 has homology with proteins in the TGF-Deta superfamily. Fragments of the mOP-2 protein can be used in the production of dimeric peptides which may be used in the generation of antibodies are capable of binding specifically to an epitope of the osteogenic protein and may be used in purification protocols. Osteogenic protein mOP-2, may be used in an implantable osteogenic device which allows predictable bone formation to correct acquired and congenital caranofacial and other skeletal or dental anomalies. They may be used to caranofacial and other skeletal or dental anomalies. They may be used to caranofacial and other skeletal or dental anomalies.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      induce local endochrondral bone formation in non-union fractures and in other clinical applications including dental and periodontal applications where bone formation is required. Other potential applications include cartilage repair, e.g. in the treatment of osteoarthritis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           194 GPPLYQLGAATQARPPHASGPRRRLGCERAWNHSVREAGVPLGLPAPGARRRGGSASRS 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               glalcalggghgprpp-htc-pgrrlg-arerrdmgreilavlglpgr-prpragpaaar 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A morphogenically active protein MOP-3 - for inducing tissue morphogenesis in mammals
Disclosure; Page 134-136; 164pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 118; DB 16; Length 399;
Pred. No. 4.60e+00;
12; Mismatches 22; Indels
                                                                                                                                                                                                                                                                                                                               Rueger DC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ozkaynak E;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   R54938;
15-OCT-1994 (first entry)
Osteogenic protein mOP2-PP.
Morphogenic protein; mOP-2-PP; OP-2; mOP2; mOP-2;
tissue morphogenesis; osteogenic protein.
                                                                                                                                                                                                                                                                                                                               Ozkaynak E,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Oppermann H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       03-NOV-1992; US-971091.
04-MAR-1993; US-029335.
31-MAR-1993; US-040510.
(CREA-) CREATIVE BIOMOLECULES INC.
COhen CM, Kubersampath T, Opperme Pang RHL, Rueger DC;
WPI; 94-167392/20.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    R54938 standard; Protein; 399 AA.
                                                                                                                                                                                                                                                                                                                               Oppermann H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 1.4%;
Best Local Similarity 38.7%;
Matches 24; Conservative
                                                                                                                                                                               US-621988.
US-660162.
US-810560.
US-827052.
US-841646.
US-147023.
                                                                                                                    US-599543.
US-616374.
US-621849.
                                                           US-483913.
US-569920.
                                                                                                                                                                                                                                                                                                          (STYC ) STRYKER CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11-MAY-1994.
02-NOV-1993; UI0520.
                                                                                                                                                                                                                                                                                                                                                  WPI; 96-010159/01.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         399 AA;
                                                                                                                                                                                                                                                                                                                               Kuberasampath T,
                                                                                               07-SEP-1990; UR-0CT-1990; UR-0CT-1990; UR-0CT-1990; UR-0CT-1990; UR-DEC-1990; UR-0CT-1991; UR-0C
                                                                                                                                                                                                                                                                                                                                                                     N-PSDB: T02599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     P-PSDB; 065394
                                                                                                                                                                                                                                          28-JAN-1992;
21-FEB-1992;
                                                         22-FEB-1990;
20-AUG-1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO9410203-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      254 LP 255
                                                                                                                                                                                                                                                                                     01-NOV-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ďБ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mus sp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
```

```
The following of morphogenic or in-vivo morphogenic-stimulating agent - to prevent bone loss or increase, used for treating bone fractures, post-menopausal or senile osteoporosis, hyperparathyroidism etc. Disclosure; Page 122-123; 162pp; English.

The sequence is that of mouse osteogenic protein 2 (mOP-2) a morphogenically active protein which may be used as part of a morphogenically active protein which may be used as part of a morphogenically active protein which may be used as part of a morphogenically active protein which may be used as part of a morphogenically active protein which may be used as part of a morphogenically actives or other defects in skeletal reconstructure. Such diseases include chronic renal failure and other kidney diseases, osteomalacia, vitamin D deficiency-induced other kidney diseases, osteomalacia, vitamin D deficiency-induced other kidney diseases, osteomalacia, vitamin D deficiency-induced osteopenia or osteoporosis, postmenopausal females, aged individuals and individuals undergoing postmenopausal females, aged individuals and individuals undergoing dialysis. The loss of bone mass may result from an imbalance in bone resorption or bone formation, an imbalance of calcium or hosphate content and an individual or individuality or hormonally individuality.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sequence given in 10. cDNA and protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12 glalcalggghgprpp-htc-pqrrlg-arerrdmqreilavlglpgr-prpragpaaar 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       osteoporosis; hyperparathyroidism; skeletal microstructure defects; chronic renal failure; kidney disease; osteomalacia, vitamin D; deficiency-induced osteopenia, osteoporosis; Paget's disease; bone mass; imbalance; resorption; formation; dialysis; calcium; Mus musculus.
A novel mouse morphogenic protein, OP3, has the sequence given in R54934, and is encoded by CDNA of sequence (05390. CDNA and protein sequences were also provided for human osteogenic protein OP1 (055391, R54935), mouse OP1 (055392, R54936), human OP2 (053392, R54937) and mouse OP2 (053392, R54938), as well as the genomic DNA sequence of human OP2 (055395). Generic sequences given in R54939-40 accommodate homologies between OP1, OP2, OP3 and other morphogen Sequence 399 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note= "pro region, cleaved to yield mature, active protein"
298..299
                                                                                                                                                                                                                                                                                                                                                                                                               Score 118; DB 10; Length 399; Pred. No. 4.60e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "conserved seven cysteine skeleton"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12; Mismatches 22; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R33908;
21-JUL-1993 (first entry)
Mouse osteogenic protein 2 (mOP-2).
Bone; loss; increase; fracture; post-menopausal; senile;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cohen CM, Kuberasampath T, Oppermann H, Ozkaynak E,
Pang RHL, Rueger DC, Smart JE;
WPI; 93-117208/14.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "mature protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     30-AUG-1991; US-752764.
30-AUG-1991; US-752857.
30-AUG-1991; US-752861.
31-UUL-1992; US-923780.
(CREA-) CREATIVE BIOMOLECULES INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R33908 standard; Protein; 399 AA.
                                                                                                                                                                                                                                                                                                                                                                                                               Match 1.4%;
Local Similarity 38.7%;
les 24; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  261..399
/note= "π
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note=
```

```
17-FEB-1994.
29-JUL-1993; U07189
                           31-MAR-1994.
15-SEP-1993; U08885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mus musculus.
WO9403600-A.
                                                                                                                                                                                                                                                                                                                                                                                       255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Jones WK,
                                                                                                                                                                                                                                                                                                                                                                     69
                                                                                                                                                                                                                                                                                                                                                                     ďБ
                                                                                                                                                                                                                                                                                                                                                                                       ĽΡ
                                                                                                                                                                                                                                                                                                                                                                                                                                       R47253;
                                                                                                                                                                                                                                                                                                                             12
                                                                                                                                                                                                                                                                                                                                                                     68
                                                                                                                                                                                                                                                                                                                                                                                      254
à
                                                                                                                                                                                                                                                                                                                                                                    유
                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                              4
                                                        glalcalggghgprpp-htc-pqrrlg-arerrdmqreilavlglpgr-prpragpaaar 67
                                              glalcalggghgprpp-htc-pgrrlg-arerrdmgreilavlglpgr-prpragpaaar 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                           Gaps
                                                                                                                                                                                                                                                                                                                                                                capable of enhancing tissue morphogenesis, development and viability, e.g. in infants, aged individuals and metabolic disorders, e.g. anorexia nervosa, etc. Disclosure and Claims 25-26; Page 127-129; 160pp; English. Murine osteogenic protein mOP2 and proteins having at least 70% homology with it are preferred morphogens for inclusion in new morphogen-enriched nutritional formulations. The formulations are dietary compositions suitable for people at risk for tissue damage due to protein energy malnutrition or to altered metabolism an infant or juvenile.
                                                                                                                                                                                              tissue development;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4
                           4;
                                                                                                                                                                                                                                                                                                                                                        Morphogen enriched dietary compositions and infant formula
        Length 399;
        Length 399;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OP-1: OP-2; CBMP2; Vgl(fx); Vgr(fx); DPP(fx); GDF-1(fx); 60A(fx); BMP3(fx); BMP5(fx); BMP5(fx); BMP6(fx); Osteogenic protein; morphogen; morphogenic protein; gastrointestinal tract; luminal lining; epithelial cell; proliferation; ulcer; lesion; inflammation; regeneration;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 118; DB 9; Length 399
Pred. No. 4.60e+00;
12; Mismatches 22; Indels
                                                                                                                                                               25-Aug-1994 (first entry)
Mouse osteogenic protein mOP2.
mouse osteogenic protein; mOP2; murine; morphogen;
infant food formulation; tissue morphogenesis; tissue hone growth; morphogen-enriched nutritional product.
                                                                                                                                                                                                                                                                                                                    Ozkaynak
       DB 7;
       Score 118; DB 7
Pred. No. 4.60e+1
12; Mismatches
                                                                                                                                                                                                                                                                                                       (CREA.) CREATIVE BIOMOLECCUES TO SOURCE WK, KUDErasampath T, Oppermann Rueger DC, Tucker RF, Cohen CM, Pang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R50201 standard; Protein; 399 AA.
R50201;
                                                                                                                                             R46744 standard; Protein; 399 AA.
        1.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.4%;
Local Similarity 38.7%;
tes 24; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11-OCT-1994 (first entry) Murine OP-2.
      Query Match 1.4%;
Best Local Similarity 38.7%;
Matches 24; Conservative
                                                                                                                                                                                                                                                                    US-922813.
                                                                                                                                                                                                                                                                          16-SEP-1992; US-946235.
04-MAR-1993; US-029335.
31-MAR-1993; US-040510.
                                                                                                                                                                                                                                                         US-923780
                                                                                                                                                                                                                                             U07190.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              399 AA
                                                                                                                                                                                                                                                                                                                                                N-PSDB; Q58052
                                                                                                                                                                                                                                               29-JUL-1993;
                                                                                                                                                                                                                                                         31-JUL-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LP 255
                                                                                                       LP 255
                                                                                                                                                                                                                                      17-FEB-1994
                                                                                    69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ф
                                                                                     ф
                                                                                                                                                                                                                 Muridae.
                                                                                                                                                        R46744;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 254
                                             12
                                                                                    89
                                                                                                       254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KE KE KE DIG I
                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                              셤
                                                                                    g
                                                                 ð
                                                                                                       à
```

```
effects of cancer therapy.

Claim 35-36; Page 115-117: 151pp; English.

Morphogens comprising an amino acid sequence sharing at least 70% homology with Op-1, Op-2, CBMP2, BMP3(fx), Vq1(fx), Vgr(fx), DPP(fx), GDF-1(fx), 60A(fx) and at least 80% homology with BMP5(fx) are useful for maintaining the integrity of the gastrointestinal tract luminal lining in a mammal, including (1) limiting epithelial cell proliferation, (2) inhibiting ulcerative lesion formation, (3) inhibiting inflammation normally associated with ulcerative diseases, and/or (4) stimulating the repair of sequence 399 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  glalcalggghgprpp-htc-pqrrlg-arerrdmgreilavlglpgr-prpragpaaar 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for regeneration of tissue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Morphogenic protein soluble complex - for regeneration of tissue in mammals and diagnosing tissue disorders Claim 3? Page 75-77; 120pp; English.

This sequence represents the murine derived protein, osteogenic protein, mOP-2. The mature OP-2 protein was used as at least one subunit in the dimeric protein of the invention. This dimeric protein comprises a pair of protein subunits which are associated to give a structure with morphogenic activity. Each subunit comprises more than 100 amino acids having a pattern of
                                                                                                                                                                                                                            N-PSDB; 045119.
Maintaining integrity of gastrointestinal lining using a morphogen (stimulant) - for treating or preventing ulceration, also to inhibit endothelial cell proliferation and reduce side
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              morphogenic activity; oysteine; morphogen; family; pro-region; complex; soluble; aqueous solvent; therapeutic composition; symptom-alleviating; co-factor; antibody; diagnosis; assay; quantitate; mature.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Human; hippocampus; osteogenic protein; OP-1; subunit; dimer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 399;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 118; DB 10; Length 399
Pred. No. 4.60e+00;
12; Mismatches 22; Indels
                                                                                                                                       Oppermann H;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>ы</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ozkaynak
                                                                                                                                    Kuberasampath T, C
leger DC, Smart JE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Oppermann H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           31.JUL-1992; US-923780.

04.MAR-1993; US-029335.

31.MAR-1993; US-040510.

(CREA-) CREATIVE BIOMOLECULES INC.
15-SEP-1992; US-945286.
W-MAR-1993; US-029335.
31-MAR-1993; US-040510.
(CREA-) CREATIVE BIOMOLECULES INC.
                                                                                                                                                                      Rueger DC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R47253 standard; Protein; 399 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kuberasampath T,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 1.4%;
Best Local Similarity 38.7%;
Matches 24; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15-AUG-1994 (first entry)
                                                                                                                                       Cohen CM,
                                                                                                                                 Charette MF, Cohen CM,
Ozkaynak E, Pang RHL,
WPI; 94-118121/14.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Rueger DC, Tucker RF;
WPI; 94-065689/08.
N-PSDB; Q56201.
```

255

ĽЪ

254

```
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4;
                                                                                                                                                                                                                                                                                               cysteine residues characteristic of the morphogen family. Each subunit comprises a mature form of a subunit of a member of the morphogen family, non-covalently complexed with a peptide comprising a pro-region of a morphogenic family member, to form a complex more soluble in aqueous solvents than the uncomplexed subunits. The dimeric protein is useful in a therapeutic composition, pref. also containing a symptom-alleviating co-factor. The protein and corresponding antibody may be used in diagnostic assays, eg. to quantitate the amount of mature and soluble forms of morphogenic
                                                                                                                                                                                                                                                                        12 glalcalggghgprpp-htc-pgrrlg-arerrdmgreilavlglpgr-prpragpaaar 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Use of morphogen(s), e.g. osteogenic proteins, on dentinal surfaces - for inducing dentine morphogenesis, desensitising teeth or sealing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      glalcalggghgprpp-htc-pqrrlg-arerrdmqrellavlglpgr-prpragpaaar 67
                                                                                                                                                                                                                                          4; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mouse embryo full-length osteogenic protein Op-2 (W00239)
Mouse embryo full-length osteogenic protein Op-2 (W00239)
includes a pro-sequence and the morphogenically active mature
includes a pro-sequence (see also W00224) that includes a 7-cys C-terminal
domain. Op-2 can be expressed from intact or truncated cDNA
(T33444) in prokaryotic or eukaryotic host cells. Mature Op-2 and
other morphogens (see also W00221-35), partic. human Op-1 (W00221),
can be used to induce dentine morphogenesis, to seal dental
cavities and to desensitise teeth to pressure and/or temp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mouse osteogenic protein 09-2.
Morphogen; osteogenic protein; dentine; tooth decay; caries; morphogenesis; odontoblast; 0P-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 399;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 118; DB 19; Length 399;
Pred. No. 4.60e+00;
12; Mismatches 22; Indels
                                                                                                                                                                                                      Score 118; DB 9; Length 399; Pred. No. 4.60e+00;
                                                                                                                                                                                                                                         12; Mismatches 22; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /label-Mat_protein
288..399
/label- 7-Cys_C-terminal_domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /label= Sig_peptide
18.260
/label= Pro_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                )1-MAR-1995; US-396930.
(CREA-) CREATIVE BIOMOLECULES INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                            standard; Protein; 399 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Charette MF, Rutherford RB;
WPI; 96-412583/41.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity 38.7%;
Matches 24: Concerning
                                                                                                                                                                                                        I.4%;
Local Similarity 38.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21-NOV-1996 (first entry)
                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                261..399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14-FEB-1996; U02169
                                                                                                                                                                        399 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      399 AA;
                                                                                                                                                         proteins produced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N-PSDB; T33444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tooth cavities
                                                                                                                                                                                                                                         24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               W09626737-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-MAR-1995;
                                                                                                                                                                                                                                                                                                                                                                           254 LP 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                06-SEP-1996
                                                                                                                                                                                                                                                                                                                                          68 qp 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        db 69
                                                                                                                                                                          Sequence
                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein
                                                                                                                                                                                                                                                                                                                                                                                                                                            W00239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      89
                                                                                                                                                                                                                                         Matches
     888888888888
                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                           ô
                                                                                                                                                                                                                                                                                                                                                                                                                                               윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                         ò
```

```
Presenting for compounds which modulate morphogen expression - by incubating for compounds which modulate morphogen contain a forelular gene for morphogenic protein expression

Present general for morphogenic protein expression

Disclosure; Columns 67-70; 49pp; English.

CC Priceins are a group of morphogenically active proteins. Morphogens CC OP-2 proteins are a group of morphogenically active proteins. Morphogens care inactive when reduced, but are active as oxidised homodimers and when coxidised with other morphogens (e.g. W36853-62). Comparison of the amino coxidised with other morphogens (e.g. W36853-62). Comparison of the amino coxidised with other morphogens has identified a consensus 6-7.

Cysteine motif at the C-terminal. Morphogenic proteins such as OP-2 play an important role, not only in embryogenesis, but also in tissue and commanitement and repair in mammals. They induce a developmental corgan maintenance and repair in mammals. They induce a developmental corgan maintenance and repair in mammals. They induce a developmental cascade of tissue-specific morphogenesis in a mammal. A novel method is described for screening a candidate compound for the ability to modulate compound is incubated with epithelial cells which expressed by the cellular gene. A change in the level of the protein certis are assayed for the presence of or the amount of the protein certis are assayed for the presence of or the amount of the protein certis are assayed for the presence of or the amount of the protein certis are assayed for the presence of or the amount of the protein certis are assayed for the presence of or the amount of the protein certis are assayed for the presence of or the amount of the protein certis are assayed for the presence of or the amount of the protein certis are assayed for the presence of or the amount of the protein certis are assayed for the presence of or the amount of the protein certis are assayed for the presence of the candidate compound is indicative of the protein compound to modulate expr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            194 GPPLYQLGAATQARPPPHASGPRRRLGCERAWNHSVREAGVPLGLPAPGARRRGGSASRS 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12 glalcalggghgprpp-htc-pqrrlg-arerrdmqreilavlglpgr-prpraqpaaar 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                      10-MAR-1998 (first entry)
Full length sequence of mouse osteogenic protein 2 (hOP-2).
Mouse osteogenic protein; OP; OP-2; morphogen; morphogenic protein; embryogenesis; organ maintenance; tissue-specific morphogenesis; arthritis; emphysema; osteoporosis; cirrhosis.
                                                                                                                                                                                                                                  /note= "pro region which is cleaved to yield the mature morphogenically active protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4 .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 118; DB 26; Length 399;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No. 4.60e+00;
12; Mismatches 22; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ozkaynak E;
                                                                                                                                                                                                                                                                                                                                                      /note= "conserved 7 Cys skeleton"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Oppermann H,
                                                                                                                                                                                                                                                                      261..399
/note= "mature protein"
                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (CREA-) CREATIVE BIOMOLECULES INC.
W36856 standard; Protein; 399 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Cohen CM, Kuberasampath T, O)
Pang WH, Rueger DC, Smart JE;
WPI; 97-384665/35.
N-PSDB; T97882.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 1.4%;
Best Local Similarity 38.7%;
Matches 24; Conservative
                                                                                                                                                                                                                 18..260
                                                                                                                                                                                                                                                                                                                                                                                                                                                28-AUG-1992; US-938021.
30-AUG-1991; US-752764.
30-AUG-1991; US-752861.
                                                                                                                                                                                                                                                                                                                                                                                                     22-JUL-1997.
20-JUL-1994; 278729.
                                                                                                                                                                                                                                                                                                                                                                          US5650276-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cohen CM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        감
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ď
                                                                                                                                                                                                                                                                                     Protein
                          W36856;
                                                                                                                                                                  Mus sp.
                                                                                                                                                                                                              Region
                                                                                                                                                                                                                                                                                                                                Region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QY
```

```
4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             194 GPPLYQLGAATQARPPPHASGPRRLGCERAWNHSVREAGVPLGLPAPGARRRGGSASRS 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 glalcalggghgprpp-htc-pqrrlg-arerrdmgreilavlglpgr-prpragpaaar 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       morphogenic; osteogenic protein; developmental cascade; mOP-2; mouse; inflammation; anti-inflammatory; Transforming Growth Factor; TGF-beta super-family; hippocampus.
                                                                                                                                                                                                                                                                                                                     Morphogen-induced periodontal tissue regeneration - used in integrating as implanted tooth in tooth socket or to inhibit tissue loss associated with periodontal disease or injury claim 28-29; page 100-103; 132pp; English.

Morphogens comprising an amino acid sequence sharing at least 70% homology with DoP-1, OP-2, CBMPS, Vgl(fx), Vgr(fx), DPP(fx), GDF-1(fx), 60A(fx) and at least 80% homology with BMP3(fx), BMP5(fx) and bMP6(fx) are useful for integrating an implanted vich benindontal disease or injury.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /*tag= b
/note= "contains conserved 7 cysteine skeleton"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 118; DB 10; Length 399;
Pred. No. 4.60e+00;
12; Mismatches 22; Indels
                                                                    OP-1; OP-2; CBMP2; Vgl(fx); Vgr(fx); DPP(fx); GDF-1(fx); GOA(fx); BMP3(fx); BMP5(fx); BMP6(fx); tooth socket; alveolus; osteogenic protein; morphogen; morphogen; protein; periodontal tissue; regeneration; tooth implant; integration; inhibition.
                                                                                                                                                                          31-MAR-1994.
15-SEP-1993; U08742.
15-SEP-1993; US-945285.
04-WAR-19993; US-029335.
31-MAR-19993; US-040510.
(CREA-) CREATIVE BIOMOLECULES INC.
CORPORT K. RUBGAR BIOMOLECULES INC.
WPIS RLi, RUBGAR DC, SMAIT JE;
WPI; 94-118107/14.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 30-AUG-1991; US-752764.
30-AUG-1991; US-752764.
30-AUG-1991; US-752059.
(CREA-) CREATIVE BIOMOLECULES INC.
Cohen CM, Kuberasampath T, Oppermann H, Ozkaynak E;
WPI; 93-HOG52/AL2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /*tag= a
/note= "mOP-2-PP"
873..1289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R33411 standard; Protein; 399 AA.
33411.
15-37UL-1993 (first entry)
Murine pro-OP-2-PP.
T 14
R57974 standard; Protein; 399 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 1.4%;
Best Local Similarity 38.7%;
Matches 24; Conservative
                        R57974;
11-OCT-1994 (first entry)
Murine OP-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .1292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO9304692-A.
18-MAR-1993.
28-AUG-1992; U07358.
                                                                                                                                                                                                                                                                                                          N-PSDB; Q67314
                                                                                                                                                Mus musculus
WO9406399-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           68 db 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     254 LP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
```

THIS PAGE BLANK (USPTO)

*****	(TM)	******
* * * * * *	· <del></del>	*****
***	''	***
******		******
******		******
******		********
2. ************************************		· 在安徽市场中的安徽市场的安徽市场的安徽市场的安徽市场的安徽市场的安徽市场的安徽市场的安徽市场
********		********
*******		*******
*		*

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

MPsrch_pp protein - protein database search, using Smith-Waterman algorithm Mon Dec 28 07:52:22 1998; MasPar time 58.82 Seconds 742.293 Million cell updates/sec Run on:

**თთთთთთთ** 

Tabular output not generated.

>US-08-951-733-20 (1-1154) from US08951733.pep 8624 1 HASGQRCVLLRTWEALAPAT.....TALEAAANPALPSDFKTILD 1154 Title: Description: Perfect Score: Sequence:

PAM 150 Gap 11 Scoring table:

320804 seqs, 37834689 residues Searched:

Minimum Match 0% Listing first 45 summaries Post-processing:

Database:

a-pending 1:P9 2:U60 3:U7 4:U80 5:U81 6:U82 7:U83 8:U84 9:U85 10:U86 11:U87 12:U88 13:U89 14:U90 15:U91 16:NEWP 17:NEWU6 18:NEWU8 19:NEWU9

Mean 40.462; Variance 196.348; scale 0.206 Statistics: Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

		d			SUMMARIES		
Result	Č	Query		1	í	: : :	
 Q	score	Match	Length	BB :	QI .	Description	Pred. No.
-	8624	100.0	1154	13	US-08-951-	Sequence 20, Applicati	0.00e+00
7	8607	8.66	1189	18	US-08-974-	613,	0.00e+00
m	8607	99.8	1189	13	US-08-911-	34, 7	0.00e+00
4	8607	99.8	1189	13	US-08-912-	325,	0.00e+00
'n	8607	99.8	1200	18	US-08-974-	612,	0.00e+00
9	8607	99.8	1200	13	US-08-912-	Sequence 324, Applicat	0.00e+00
7	8607	99.8	1200	13	US-08-911-	33, 7	0
ω	8607	8.66	1285	18	US-08-974-	600,	0.00e+00
σ	8607	99.8	1285	13	US-08-911-	32, A	0.00e+00
10	8607	99.8	1285	13	US-08-912-	314,	0.00e+00
11	8590	99.6	1407	13	US-08-911-	55, A	0.00e+00
12	8590	99.6	1407	18	US-08-974-	628,	0.00e+00
13	8590	99.6	1407	13	US-08-912-	334,	0.00e+00
14	8465	98.2	1132	18	US-08-974-	7	0.00e+00
15	8465	98.2	1132	13	US-08-912-	Sequence 2, Applicatio	0.00e+00
16	8465	98.2	1132	13	US-08-911-	Sequence 2, Applicatio	0.00e+00
17	8465	98.2	1132	14	US-09-042-	Sequence 3, Applicatio	0.00e+00
18	8465	98.2	1132	14	US-09-052-	Sequence 2, Applicatio	0.00e+00
19	8465	98.2	1132	12	US-08-854-	225	0.00e+00
20	8465	98.2	1154	13	US-08-912-	Sequence 323, Applicat	0.00e+00
21	8465	98.2	1154	18	US-08-974-	Sequence 611, Applicat	0.00e+00

```
1021
                                                                                    1081
                                                                                                   1081
                                                                                                                   1141
                                                                     1021
        901
                        961
                                      961
                                                                                                                 ద
                      g
                                                     g
                                                                                    g
                                                                     Qγ
                                                                                                   δ
                                                                                                                                 ö
                                       ò
                                                                             ö
                                                                                                                                                                                                                                                                                              420
                                                                                                                                                                                                                                                                                                                                                                                                                                    180
                                                                                                                                                              FVLVAPSCAYQVCGPPLYQLGAATQARPPPHASGPRRRLGCERAWNHSVREAGVPLGLPA 240
                                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                                  360
                                                                                                                                                                                                                                                       420
                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                                      540
                                                                                                                                                                                                                                                                                                                                                   900
                                                                                                                                                                                                                                                                                                                                                                                         900
                                                                                                                                                                                                                                                                                                                                                                                                         999
                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VQRGDPAAFRALVAQCLVCVPWDARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLA 120
                                                                                                                                                                                                                  PGARRRGGSASRSLPLPKRPRRGAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARP 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              901 HAKTFLRILVRGVPEYGCVVNLRKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTR 960
                                                                                                   1 HASGORCVLLRTWEALAPATPAMPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRL 60
                                                                             Gaps
                                                                                                                                                      FGFALLDGARGGPPEAFTTSVRSYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCAL
                                                                                                                                                                                            AEEATSLEGALSGTRHSHPSVGRQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDK
                                                                                                                                                                                                                                                                                                                                           WQVYGFVRACLRRLVPPGLWGSRHNERRFLRNTKKFISLGKHAKLSLQELTWKMSVRDCA
                                                                                                                                                                                                                                                                                                                                                                         WLRRSPGVGCVPAAEHRLREEILAKFLHWLMSVYVVELLRSFFYVTETTFQKNRLFFYRK
                                                                                                                                                                                                                                                                                                             NHAQCPYGVLLKTHCPLRAAVTPAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSP
                                                                                                                                                                                                                                                                                                                                                                                                               RIRGKSYVQCQGIPQGSILSTLLCSLCYGDMENKLFAGIRRDGLLLRLVDDFLLVTPHLT
                                                                                                                                                                                                                                                                                                                                                                                                       SVWSKLQSIGIRQHLKRVQLRELSEAEVRQHREARPALLTSRLRFIPKPDGLRPIVNMDY
                                                                           ö
                                                              Length 1154;
                                                                            Indels
                                                                             ö
                                                             Score 8624; DB 13;
Pred. No. 0.00e+00;
                                                                            0; Mismatches
                                    MOLECULE TYPE: protein
FENCE 1154 AA; 129326 MW; 6842246 CN;
SEQUENCE CHARACTERISTICS:
LENGTH: 1154 amino acids
                       unknown
                                                            Query Match 100.0%;
Best Local Similarity 100.0%;
Matches 1154; Conservative
                             unknown
              TYPE: amino acid
STRANDEDNESS: un)
                              TOPOLOGY:
                                              SEQUENCE
                                                                                                                         61
                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                               301
                                                                                                                                                      121
                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                        541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  721
                                                                                                                                      61
                                                                                                                                                                                    181
                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                           481
                                                                                                                                                                                                                                                                                                                                                                                        541
                                                                                                                                                                                                                                                                                                                                                                                                                      601
                                                                                                                                                                                                                                                                                                                                                                                                                                      661
                                                                                                                                                                                                                                                                                                                                                                                                                                                    199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               841
                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            용
88888888
                                                                                                         ò
                                                                                                                        유
                                                                                                                                                     셤
                                                                                                                                                                    à
                                                                                                                                                                                    셤
                                                                                                                                                                                                  ò
                                                                                                                                                                                                                g
                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                         요
                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                     유
                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                       ò
```

```
TNIYKILLLQAYRFHACVLQLPFHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGA 1080
                                                                                                                                                                                                                                                                                                                                                    TLEVQSDYSSYARTSIRASLTFNRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVC 1020
KGAAGPLPSEAVQWLCHQAFILKLTRHRVTYVPLLGSLRTAQTQLSRKLPGTTLTALEAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Morin, Gregg B.
APPLICANT: Harley, Calvin B.
APPLICANT: Harley, Calvin B.
APPLICANT: Andrews, William H.
ITILE OF INVENTION: Human Telomerase Catalytic Subunit
NUMBER OF SEQUENCES: 726
ADDRESSEE: Townsend and Townsend and Crew LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEE: Townsend and Townsend and Crew LLP: Two Embarcadero Center, Eighth Floor San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1189 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996
FILING PAPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAX-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/911,312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 18-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US 08/851,843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US/08/974,549
FILING DATE: 19-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        613, Application US/08974549 INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 613, Application US/08974549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cech, Thomas R.
Lingner, Joachim
Nakamura, Toru
Chapman, Karen B.
Morin, Gregg B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         06-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 25-APR-1
PRIOR APPLICATION DATA:
APPLICATION NUMBER: U
                                                                                                                                                                                                                                                                                                                                                                                                                                 1154
                                                                                                                                                                                                                                                                                                                                                                                                                                                               California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 19
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                    ANPALPSDFKTILD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 2

AC XXXXX

XX

DE Sequence 613, Appli
XX

CC GENERAL INFORMATI
CC APPLICANT: Che
CC APPLICANT: Che
CC APPLICANT: Che
CC APPLICANT: Che
CC APPLICANT: Har
CC APPLICANT: Har
CC APPLICANT: Che
CC APPLICANT: Che
CC APPLICANT: Har
CC APPLICANT: Che
CC APPLICANT: Har
CC APPLICANT: Har
CC APPLICANT: Che
CC COUNTRY: San Fr
CC COUNTRY: Calific
CC COUNTRY: Calific
CC COUNTRY: Calific
CC COUNTRY: CAL
APPLICATION N
CC COUNTRY: CAL
APPLICATION
CC PRICE
C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE:
```

756

969

US-08-951-733-20.rap

```
1117 GAAGPLPSEAVQWLCHQAFLLKLTRHRVTYVPLLGSLRTAQTQLSRKLPGTTLTALEAAA 1176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    722 QDPPPELYFVKVDVTGAYDTIPQDRLTEVIASIIKPQNTYCVRRYAVVQKAAHGHVRKAF 781
    482 QVYGFVRACLRRLVPPGLWGSRHNERRFLRNTKKFISLGKHAKLSLQELTWKMSVRDCAW 541
                                                                                                                                                               QDPPPELYEVKVDVTGAYDTIPQDRLTEVIASIIKPQNTYCVRRYAVVQKAAHGHVRKAF
                                                                                                                                                                                                                                                                                                                                                                                                                                             1022 NIYKILLLQAYRFHACVLQLPFHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAK
                                                577 LRRSPGVGCVPAAEHRLREEILAKFLHWLMSVYVVELLRSFFYVTETTFQKNRLFFYRKS
                                                                                                                                       637 VWSKLQSIGIRQHLKRVQLRELSEAEVRQHREARPALLTSRLRFIPKPDGLRPIVNMDYV
                                                                                                                                                                                                                                     VGARTFRREKRAERLTSRVKALFSVLNYERARRPGLLGASVLGLDDIHRAWRTFVLRVRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1057 NIYKILLLQAYRFHACVLQLPFHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAK
                                                                          817 KSHVSTLTDLQPYMRQFVAHLQETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHHAVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 877 IRGKSYVQCQGIPQGSILSTLLCSLCYGDMENKLFAGIRRDGLLLRLVDDFLLVTPHLTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               937 AKTFLRTLVRGVPEYGCVVNLRKTVVNFPVEDEALGGTAFVOMPAHGLFPWCGLLLDTRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LEVQSDYSSYARTSIRASLTFNRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 34, Application US/08911312
GENERAL INFORMATION:
APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Chapman, Karen B.
APPLICANT: Chapman, Karen B.
APPLICANT: Morin, Gregg B.
APPLICANT: Harley, Calvin B.
APPLICANT: Andrews, William
TILEO F INVENTION: Telomerase Reverse Transcriptase
NUMBER OF SEQUENCES: 170
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: Townsend and Townsend and Crew LLP STREET: Two Embarcadero Center, Eighth Floor CITY: San Francisco STATE: California COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1189 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 34, Application US/08911312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NPALPSDFKTILD 1189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               T 3
US-08-911-312-34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1142
                                                                                                                                                                                                                                   697
                                                                                                                                                                                                                                                                                                                            757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                         ò
                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VLVAPSCAYQVCGPPLYQLGAATQARPPHASGPRRRLGCERAWNHSVREAGVPLGLPAP 276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GARRRGGSASRSLPLPKRPRRGAAPEPERTPVGQGSWAHPGRIRGPSDRGFCVVSPARPA 336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QLRPSFLLSSLRPSLTGARRLVETIFLGSRPWMPGTPRRLPPRLPQRYWQMRPLFLELLGN 456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QVYGFVRACLRRLVPPGLWGSRHNERRFLRNTKKFISLGKHAKLSLQELTWKMSVRDCAW 576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           97 QRGDPAAFRALVAQCLVCVPWDARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAF 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GFALLDGARGGPPEAFTTSVRSYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCALF 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              37 ASTORCYLLRTWEALAPATPAMPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLV 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note= "fusion protein composed of melittin signal sequence and full length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EEATSLEGALSGTRHSHPSVGRQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HAQCPYGVLLKTHCPLRAAVTPAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSPW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 8607; DB 18; Length 1189;
Pred. No. 0.00e+00;
0; Mismatches 1; Indels 0;
                                                                                                       PRICEATION NUMBER: US 08/915,503
FILING DATE: 14-MG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: WO PCT/US97/17618
FILING DATE: 01-OCT-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: WO PCT/US97/17885
FILING DATE: 01-OCT-1997
ATTORNEY/AGENT INFORMATION:
NAME: Apple, Randolph Ted
REGISTRATION NUMBER: 36,429
RECENENCE/DOCKET NUMBER: 36,429
RECENENCE/DOCKET NUMBER: 015389-002610US
TELEPHONE: (415) 576-0300
INFORMATION FOR SEQ ID NO: 613:
SEQUENCE CHARACTERISTICS:
LENGTH HIS SECTION OF S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  R INFORMATION: hTRT protein"
1189 AA; 133179 MW; 7256545 CN;
                                             US 08/912,951
FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE: protein
                                                                   FILING DATE: 14-AUG-PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 99.8%;
Best Local Similarity 99.9%;
Matches 1152; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: Protein
LOCATION: 1..1189
OTHER INFORMATION:
OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        422
```

셤 ò 셤 å 8 ò g ò 셤 ò 셤 ò ద

ò a å 셤

1116

1056 1021

661

601

```
997 LEVQSDYSSYARTSIRASLTFNRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCT 1056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1057 NIYKILLLQAYRFHACVLQLPFHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAK 1116
                                                                                                                                                                                                                                                                                                                                                                                                              302 EEATSLEGALSGTRHSHPSVGRQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKE 361
                                                517 QVYGFVRACLRRLVPPGLWGSRHNERRFLRNTKKFISLGKHAKLSLQELTWKMSVRDCAW 576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          397 QLRPSFLLSSLRPSLTGARRLVETIFLGSRPWMPGTPRRLPRLPQRYWQMRPLFLELLGN
                                                                                            457 HAQCPYGVLLKTHCPLRAAVTPAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSPW
                                                                                                                                                                            LRRSPGVGCVPAAEHRLREEILAKFLHWLMSVYVVELLRSFFYVTETTFQKNRLFFYRKS
                                                                                                                                                                                                                                       VWSKLQSIGIRQHLKRVQLRELSEAEVRQHREARPALLTSRLRFIPKPDGLRPIVNMDYV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        877 IRGKSYVQCQGIPQGSILSTLLCSLCYGDMENKLFAGIRRDGLLLRLVDDFLLVTPHLTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      937 AKTFLRTLVRGVPEYGCVVNLRKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1022 NIYKILLLQAYRFHACVLQLPFHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1189 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 325, Application US/08912951
GENERAL INFORMATION:
APPLICANT: Cech, Thomas R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 325, Application US/08912951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cech, Thomas R.
Lingner, Joachim
Nakamura, Toru
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NPALPSDFKTILD 1189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1142 NPALPSDFKTILD 1154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-912-951-325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
APPLICANT:
                                                                                                                                                                                                                       577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1177
                                                                                                                                                                                                                                                                                     637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                ద
                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                   용
                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                        ద
                                                                                                                           à
                                                                                                                                                         셤
                                                                                                                                                                                        à
                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                               용
                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VLVAPSCAYQVCGPPLYQLGAATQARPPPHASGPRRRLGCERAWNHSVREAGVPLGLFAP 276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EEATSLEGALSGTRHSHPSVGRQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKE 396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GFALLDGARGGPPEAFTTSVRSYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCALF 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GARRRGGSASRSLPLPKRPRRGAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARPA 336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QRGDPAAFRALVAQCLVCVPWDARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAF 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2 ASGQRCVLLRTWEALAPATPAMPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLV 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        37 ASTQRCVLLRTWEALAPATPAMPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLV 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 8607; DB 13; Length 1189;
Pred. No. 0.00e+00;
0; Mismatches 1; Indels 0;
                                                             SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/911,312
FILING DATE: 14-AUG-1997
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER: 015389-002500US
                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/912,951
FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/915,503
FILING DATE: 14-AUG-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JE TYPE: protein
1189 AA; 133179 MW; 7256545 CN;
                                                                                                                                                                                                                  APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
PRIOR APPLICATION DATA:
                                                                                                                                                      PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996
PRIOR APPLICATION DATA:
                                             COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME: Einhorn, Gregory P. REGISTRATION NUMBER: 38,440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
TELEPHONE: (415) 576-0300
INFORMATION FOR SEQ ID NO: 34:
SEQUENCE CHARACTERISTICS:
ZIP: 94111-3834
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatil
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH: 1189 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 99.8%;
Best Local Similarity 99.9%;
Matches 1152; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRANDEDNESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         337
```

셤 ò

ŏ 셤 a à 유 ò

à

936

901

S

```
LEVQSDYSSYARTSIRASLTFNRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCT 1056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1057 NIYKILLLQAYRFHACVLQLPFHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAK 1116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1022 NIKILLLQAYRFHACVLQLPFHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAK 1081
                                                                                                                                                                                                                                                                                      516
                                                                                                                                                                                                                                                                                                                                                     576
                                                                                                                                                                                                                                                                                                                                                                                                                  636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            816
                                              QLRPSFLLSSLRPSLTGARRLVETIFLGSRPWMPGTPRRLPRLPQRYWQMRPLFLELLGN 456
                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            817 KSHVSTLTDLQPYMRQFVAHLQETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHHAVR 876
122 GFALLDGARGGPPEAFTTSVRSYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCALF 181
                                                                                            GARRRGGSASRSLPLPKRPRRGAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARPA 336
                                                                                                                                                         EEATSLEGALSGTRHSHPSVGRQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKE 396
                                                                                                            217 VLVAPSCAYQVCGPPLYQLGAATQARPPPHASGPRRRLGCERAWNHSVREAGVPLGLPAP
                                                                                                                                                                                                                                     QDPPPELYFVKVDVTGAYDTIPQDRLTEVIASIIKPQNTYCVRRYAVVQKAAHGHVRKAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         877 IRGKSYVQCQGIPQGSILSTLLCSLCYGDMENKLFAGIRRDGLLLRLVDDFLLVTPHLTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HAQCPYGVLLKTHCPLRAAVTPAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSPW
                                                                                                                                                                                                                                                                                                                                                                                                              LRRSPGVGCVPAAEHRLREEILAKFLHWLMSVYVVELLRSFFYVTETTFQKNRLFFYRKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             637 VWSKLQSIGIRQHLKRYQLRELSEAEVRQHREARPALLTSRLRFIPKPDGLRPIVNMDYV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            697 VGARTFRREKRAERLTSRVKALFSVLNYERARRPGLLGASVLGLDDIHRAWRTFVLRVRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AKTFLRTLVRGVPEYGCVVNLRKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1200 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1177 NPALPSDFKTILD 1189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-974-549-612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                997
                                                                                          277
                                                                                                                         242
                                                                                                                                                         337
                                                                                                                                                                                        302
                                                                                                                                                                                                                       397
                                                                                                                                                                                                                                                     362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          757
                                                                                                                                                                                                                                                                                    457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                            셤
                                                                                       g
                                                                                                                                                       요
                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                              ð
                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                              DIAGNOSTIC AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GFALLDGARGGPPEAFTTSVRSYLPNTVTDALRGSGAMGLLLRRVGDDVLVHLLARCALF 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGDPAAFRALVAQCLVCVPWDARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAF 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    62 QRGDFAAFRALVAQCLVCVFWDARPFPAAFSFRQVSCLKELVARVLQRLCERGAKNVLAF 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       37 ASTQRCVLLRTWEALAPATPAMPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLV 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
         APPLICANT: Morin, Gregg B.
APPLICANT: Harley, Calvin H.
APPLICANT: Andrews, William H.
TITLE OF INVENTION: HUMAN TELOMERASE CATALYTIC SUBUNIT:
TITLE OF INVENTION: THERAPEUTIC METHODS
NUMBER OF SEQUENCES: 335
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 1189;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                   #1.30
                                                                                                                      ADDRESSEE: Townsend and Townsend and Crew LLP
STREEF: Two Embarcadero Center, 8th Floor
TITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 8607; DB 13;
Pred. No. 0.00e+00;
0; Mismatches 1;
                                                                                                                                                                                                                                MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   015389-002600US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AFE.—
FILING DATE: ... 435
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
TITING DATE: 01-0CT-1996
                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAX-1997
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAX-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: linear
MOLECULE TYPE: protein
HENCE 1189 AA; 133179 MW; 7256545 CN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
                                                                                                                                                                                      United States of America
                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US/08/912,951
FILING DATE: 14-AUG-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTORNEY AGENT INFORMATION:
NAME: Apple, Randolph T.
REGISTRATION UNDRER: 36,429
REFERENCE/DOCKET NUMBER: 0153E
TELECOMMUNICATION INFORMATION:
TELEFAX: (415) 576-0200
INFORMATION FOR SEQ ID NO: 325:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1189 amino acids
                                                                                                                                                                                                                  COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
99.8%;
Best Local Similarity 99.9%;
Matches 1152; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRANDEDNESS
                                                                                                                                                                                     COUNTRY: U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   157
```

8 6 8

ò

XXXXXX

```
APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Nakamura, Toru
APPLICANT: Morin, Gregg B.
APPLICANT: Harley, Calvin B.
APPLICANT: Andrews, William H.
TITLE OF INFURION: Human Telomerase Catalytic Subunit
NUMBER OF SEQUENCES: 726
                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/974,549
FILING DATE: 19-NOV-1997
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                          E: Townsend and Townsend and Crew LLP Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME: Apple, Randolph Ted
REGISTRATION NUMBER: 36,429
REFERENCE/DOCKET NUMBER: 015389-002610US
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: WO PCI/US97/17618
FILING DATE: 01-OCT-1997
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: WO PCT/US97/17885 FILING DATE: 01-OCT-1997 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996
FILING DATE: 01-0CT-1996
FILING DATE: 18-APR-1997
FILING DATE: 18-APR-1997
FILING DATE: 25-APR-1997
FILING DATE: 25-APR-1997
FILING DATE: 25-APR-1997
FILING DATE: 06-MAY-1997
FILING DATE: 06-MAY-1997
FILING DATE: 06-MAY-1997
FILING DATE: 09-MAY-1997
FILING DATE: 14-ANG-1997
FILING DATE: 14-ANG-1997
FILING DATE: 14-ANG-1997
FRIOR APPLICATION NUMBER: US 08/854,050
FILING DATE: 14-ANG-1997
FRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 14-ANG-1997
FRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/912,951
FILING DATE: 14-ANG-1997
FRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/912,951
FILING DATE: 14-ANG-1997
FRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/912,951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US 08/915,503
FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
                                                                                                  Application US/08974549
                                                                      Sequence 612, Application US/08974549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 612:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                           CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                     CITY: San Francisco
STATE: California
                                                                                                                 INFORMATION:
                                                                                                                                                                                                                                                                                                                                  USA
                                                                                                                                                                                                                                                                          ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                 COUNTRY:
                                                                                                                                                                                                                                                                                         STREET:
```

```
ö
                                                                                                                                                                                                                                                                      407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     767
                                                                                                                                                                                                                         48 ASTQRCVLLRTWEALAPATPAMPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLV 107
                                                                                                                                                                                                                                                                                                                                                                                                                                     242 GARRRGGSASRSLPLPKRPRRGAAPEPERTPVGQSWAHPGRTRGPSDRGFCVVSPARPA 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QLRPSFLLSSLRPSLTGARRLVETIFLGSRPWMPGTPRRLPPQRYWQMRPLFLELLGN 467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KSHVSTLTDLQPYMRQFVAHLQETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHHAVR 887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2 ASGQRCVLLRTWEALAPATPAMPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLV 61
                                                                                                                                                                                                  0; Gaps
                                                                                                                                                                                                                                                                                                                                                                      468 HAQCPYGVLLKTHCPLRAAVTPAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSPW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QVYGFVRACLRRLVPPGLWGSRHNERRFLRNTKKFISLGKHAKLSLQELTWKMSVRDCAW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  288 GARRRGGSASRSLPLPKRPRRGAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       348 EEATSLEGALSGIRHSHPSVGRQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LRRSPGVGCVPAAEHRLREEILAKFLHWLMSVYVVELLRSFFYVTETTFQKNRLFFYRKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VGARTFRREKRAERLTSRVKALFSVLNYERARRPGLLGASVLGLDDIHRAWRTFVLRVRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QDPPPELYFVKVDVTGAYDT1PQDRLTEV1ASI1KPQNTYCVRRYAVVQKAAHGHVRKAF
                                                                                                                                                                     Query Match 99.8%; Score 8607; DB 18; Length 1200; Best Local Similarity 99.9%; Pred. No. 0.00e+00; Matches 1152; Conservative 0; Mismatches 1; Indels 0;
                                                                                                /note= "fusion protein composed of
and Anti-Xpress tags, enterokinase
cleavage site and full length hTRT
                                                                                 LOCATION: 1.1200
OTHER INFORMATION: /note= "fusion proTHER INFORMATION: and Anti-Xpress to OTHER INFORMATION: cleavage site and OTHER INFORMATION: protein"
NCE 1200 AA: 134322 WW; 7387257 CN;
1200 amino acids
                                                MOLECULE TYPE: protein
                                                                        NAME/KEY: Protein
            amino acid
                                     TOPOLOGY: linear
                       STRANDEDNESS:
 LENGIH:
                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       768
ద
                                                                                                                                                                                                                                                                                                                                                                      쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                ογ
                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
```

```
227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     288 GARRRGGSASRSLPLPKRPRRGAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARPA 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  348 EEATSLEGALSGTRHSHPSVGRQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKE 407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  228 VLVAPSCAYQVCGPPLYQLGAATQARPPPHASGPRRRLGCERAWNHSVREAGVPLGLPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VWSKLQSIGIRQHLKRVQLRELSEAEVRQHREARPALLTSRLRFIPKPDGLRPIVNMDYV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  108 QRGDPAAFRALVAQCLVCVPWDARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           168 GFALLDGARGGPPEAFTTSVRSYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCALF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OLRPSFLLSSLRPSLTGARRLVETIFLGSRPWMPGTPRRLPRLPQRYWQMRPLFLELLGN
                                                                                                                                                                                                                                                                                                                                                                                                           Length 1200;
                                                                                                                                                                                                                                                                                                                                                                                                        Score 8607; DB 13; Length 12
Pred. No. 0.00e+00;
0; Mismatches 1; Indels
                                                                                                                                                                REGISTRATION NUMBER: 36,429
REGISTRATION NUMBER: 36,429
REFENCE/DOCKET NUMBER: 015389-002600US
TELEPHONE: (415) 576-0200
TELEPHONE: (415) 576-0300
INFORMATION FOR SEQ ID NO: 324:
SEQUENCE CHARACTERISTICS:
LENGTH: 1200 mmino acids
TYPE: amino acid
STRANDEDNESS:
FILING DATE: 25-APR-1997
CLASSIPICATION: 435
PRIOR APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING APPLICATION A135
PRIOR APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996
CLASSIFICATION: 435
ATTORNEY/AGENT NEORATION:
                                                                                                                                                                                                                                                                                                                                                             LE TYPE: protein
1200 AA; 134322 MW; 7387257 CN;
                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity 99.9%;
Matches 1152; Conservative
                                                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                           TOPOLOGY: 11r
MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Nakamura, Tourim,
APPLICANT: Chapman, Karen B.
APPLICANT: Chapman, Karen B.
APPLICANT: Morin, Gregg B.
APPLICANT: Harley, Calvin
APPLICANT: Harley, Calvin
APPLICANT: Harley, Calvin
APPLICANT: HUMAN TELOMERASE CATALYTIC SUBUNIT: DIAGNOSTIC AND TITLE OF INVENTION: THERAPEUTIC METHODS
NUMBER OF SEQUENCES: 335
CORRESPONDENCE ADDRESS:
ADDRESSE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, 8th Floor
CITY: San Francisco
STATE: California
COUNTRY: United States of America
                                                                                                                                                                                                                                                             1008 LEVQSDYSSYARTSIRASLIFNRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCT 1067
                                                                                                                                                         1068 NIYKILLLQAYRFHACVLQLPFHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAK 1127
                                                                                                                                                                                                                     AKTFLRTLVRGVPEYGCVVNLRKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRT 1007
                                                                                                           961
                902 AKTFLRTLVRGVPEYGCVVNLRKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: Plan PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/912,951
FILING DATE: 14-AUG-1997
CLASSIFICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
CLASSIFICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
CLASSIFICATION: 435
PRICH APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
CLASSIFICATION NUMBER: US 08/851,843
FILING DATE: US-MAY-1997
FILING DATE: US-MAY-1997
CLASSIFICATION NUMBER: US 08/851,843
FRICH APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FRICH APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                        1200 AA
                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 324, Application US/08912951
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 324, Application US/08912951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        T: Cech, Thomas R.
T: Lingner, Joachim
T: Nakamura, Toru
T: Chapman, Karen B.
T: Morin, Gregg B.
                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                         US-08-912-951-324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                     XXXXX
                                                                            948
```

RESULT

g

ò

୍ଧ

셤

ò

ö

셤

ò

```
TOPOLOGY:
                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                  168
                                                                                                                                                                                                                                                                                                                                                                                                         288
                                                                                                                                                                                                                                                                                                                                                                                                                       242
                                                                                                                                                                                                                                                                                                                                                                                                                                                  302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        422
                                                                                                                                                                                                                                                                                                                                                                              228
                                                                                                                                                                                                                                                                                                                                                                                                                                    348
                                                                                                                                                                                                                                                                                                                                                                                                                                                               408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          468
                                                                                                                                                                                                                                                                                                                       g
ò
                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         å
                                                                                                                   1007
                                                                                                                                                                       LEVQSDYSSYARTSIRASLTFNRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCT 1067
     841
                                                                                       947
                                       887
                                                                    IRGKSYVQCQGIPQGSILSTLLCSLCYGDMENKLFAGIRRDGLLLRLVDDFLLVTPHLTH
                                                            KSHVSTLTDLQPYMRQFVAHLQETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHHAVR
                                                                                                                  AKTFLRTLVRGVPEYGCVVNLRKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRT
                                                                                                                         QDPPPELYFVKVDVTGAYDTIPQDRLTEVIASIIKPQNTYCVRRYAVVQKAAHGHVRKAF
                                                                                                                                                    APPLICANT: Cech, Thomas R.
APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Chapman, Karen B.
APPLICANT: Morin, Greeg B.
APPLICANT: Harley, Calvin B.
APPLICANT: Andrews, William
TITLE OF INVENTION: Telomerase Reverse Transcriptase
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER REALABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: TBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CANTENT APPLICATION DATA:
APPLICATION WIMBER: US/08/911,312
FILING DATE: 14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                              ADDRESSEE: Townsend and Townsend and Crew LLP STREET: Two Embarcadero Center, Eighth Floor CITY: San Francisco STATE: California
                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                             Sequence 33, Application US/08911312
                                                                                                                                                                                                                                                                                                                Sequence 33, Application US/08911312
                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                               NPALPSDFKTILD 1200
                                                                                                                                                                                                                                      94111-3834
                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                           USA
                                                                                                                                                                                                                                                                       US-08-911-312-33
                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                                                                                                                                                                     XXXXXX
                                                                                                                  948
                                                                                                                               902
                                                                                                                                                          962
                                                                                                                                                                                                                              1188
     708
                  662
                                              722
                                                            828
                                                                          782
                                                                                       888
                                                                                                                                            1008
                                891
                                                                                                                                                                                                                                                                 RESULT
     음
                    à
                                8
                                              ò
                                                           유
                                                                          ö
                                                                                     셤
                                                                                                     ò
                                                                                                                 g
                                                                                                                               ò
                                                                                                                                           g
                                                                                                                                                          ò
                                                                                                                                                                       셤
                                                                                                                                                                                     à
                                                                                                                                                                                                  셤
                                                                                                                                                                                                                ò
                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                            ò
```

```
347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      48 ASTORCVLLRTWEALAPATPAMPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLV 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              108 QRGDPAAFRALVAQCLVCVPWDARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAF 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             62 QRGDPAAFRALVAQCLVCVPWDARPPPAAPSFRQVSCLKELVARVLQRLCERGARNVLAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     122 GFALLDGARGGPPEAFTISVRSYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCALF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GFALLDGARGGPPEAFTTSVRSYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCALF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VLVAPSCAYQVCGPPLYQLGAATQARPPHASGPRRRLGCERAWNHSVREAGVPLGLPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EEATSLEGALSGTRHSHPSVGRQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QLRPSFILISSLRPSLTGARRLVETIFLGSRPWMPGTPRRLPRLPQRYWQMRPLFLELLGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HAQCPYGVLLKTHCPLRAAVTPAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSPW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 1200;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1; Indels
                                                                                                                                                                                                                                                                                                        PAPELICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/912,951
FILING DATE: 14-MG-1997
PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: US 08/915,503
FILING DATE: 14-MG-1997
ATTORNEY/AGENT INFORMATION:
NAME: Binhorn, Gregory P.
REGISTRATION NUMBER: 38,440
REGISTRATION NUMBER: 38,440
REGISTRATION NUMBER: 38,440
REFERENCE/COCKET NUMBER: 015389-002500US
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0300
INFORMATION FOR SEO ID NO: 33:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 8607; DB 13;
Pred. No. 0.00e+00;
0; Mismatches 1;
CLASSIFICATION: 536
PRIOR APPLICATION DATE:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-OCT-1996
PRIOR APPLICATION DATE:
PRIOR APPLICATION DATE: US 08/844,419
FILING DATE: 18-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOLECULE TYPE: protein
JENCE 1200 AA; 134322 MW; 7387257 CN;
                                                                                                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGIH: 1200 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 vuery Match
Best Local Similarity 99.9%;
Matches 1152; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
```

US-08-951-733-20.rap

g

ò

ò 요

8

요

9 셤 ò

ò

요

ò

셤

유 ð 셤 ò 요 ò

ö

```
133 ASTQRCVLLRTWEALAPATPAMPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLV 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      hTRT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note= "fusion protein composed of
enterokinase cleavable, His tagged
thioredoxin moiety and full length |
MW; 8449280 CN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 8607; DB 18; Length 1285;
Pred. No. 0.00e+00;
0; Mismatches 1; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                           Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME: Apple, Randolph Ted
REGISTRATION NUMBER: 36,429
REFERENCE/DOCKET NUMBER: 015389-002610US
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
TELEFAX: (415) 576-0300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION UNBER: US 08/911,312
PRIOR APPLICATION UNBER: US 08/911,312
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/912,951
FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/915,503
FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: WO PCT/US97/17618
FILING DATE: 01-OCT-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: WO PCT/US97/17618
FILING DATE: 01-OCT-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
FILING DATE: 09-MAY-1997
FRIOR APPLICATION DATA:
                                                                                                                                                                   SOFTWARE, CONTROL DATA:
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/974,549
FILING DATE: 19-NOV-1997
                                                                                                                                                                                                                                             CLASSIFICATION: 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-OCT-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
                                                   ZIP: 94111-3834
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-
                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 18-APR-1997
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1285 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: Protein
LOCATION: 1.1285
OTHER INFORMATION: 7nd
OTHER INFORMATION: en
OTHER INFORMATION: th.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99.8%;
larity 99.9%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOLECULE TYPE: protein
  San Francisco
California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                        USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
Matches 1152; Conser
                                                                                                                                                               SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AKTFLRTLVRGVPEYGCVVNLRKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRT 1007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LEVQSDYSSYARTSIRASLTFNRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCT 1067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1068 NIYKILLLQAYRFHACVLQLPFHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAK 1127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       647
                                                                                                                                       601
                                                                                                                                                                                VWSKLQSIGIRQHLKRVQLRELSEAEVRQHREARPALLTSRLRFIPKPDGLRPIVNMDYV 707
                                                                                                                                                                                                                                                                VGARTFRREKRAERLTSRVKALFSVLNYERARRPGLLGASVLGLDDIHRAWRTFVLRVRA 767
                                                                                                                                                                                                                                                                                   IRGKSYVQCQGIPQGSILSTLLCSLCYGDMENKLFAGIRRDGLLLRLYDDFLLVTPHLTH
                                                                                                                    588 LRRSPGVGCVPAAEHRLREEILAKFLHWLMSVYVVELLRSFFYVTETTFQKNRLFFYRKS
               528 QVYGFVRACLRRLVPPGLWGSRHNERRFLRNTKKFISLGKHAKLSLQELTWKMSVRDCAW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1128 GAAGPLPSEAVQWICHQAFLLKLTRHRVTYVPLLGSLRTAQTQLSRKLPGTTLTALEAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: Human Telomerase Catalytic Subunit NUMESE OF SOCIETION: Human Telomerase Catalytic Subunit NUMESE OF SOCIETION: HUMAN TELOMESE OF SOCIETIONS: ADDRESSEE: Towner-Super-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       :: Townsend and Townsend and Crew LLP
Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1285 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Application US/08974549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 600, Application US/08974549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 600, Applications General INFORMATION:
APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim APPLICANT: Chapman, Faren B.
TANT: Chapman, Faren B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1188 NPALPSDFKTILD 1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-08-974-549-600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           XXXXX
                                                                                                                                                                              648
                                                                                                                                                                                                                                                              708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT IN THE SECOND IN THE SE
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AKTFLRTLVRGVPEYGCVVNLRKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRT 1092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           732
                                                                                                                                                                                                                                                                                                                                                             792
                                                                                                                                                                                                                                                                                                                                                                                                   852
                                                                                                                                                                                                                                                                                                                                                                                                                                          912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 972
                                                                              372
                                                                                                                    432
                                                                                                                                                                     552
                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                         612
                                                                                                                                                                                                                                                                               QVYGFVRACLRRLVPPGLWGSRHNERRFLRNTKKFISLGKHAKLSLQELTWKMSVRDCAW 672
                                                                                                                                                                                                                                                                                                                                                                                                             122 GFALLDGARGGPPEAFTTSVRSYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCALF 181
                                                                                                                                EEATSLEGALSGTRHSHPSVGRQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKE 492
                                                                                                                                                                                                                                                             481
                                                                                                                                                                                                                                                                                                                                          601
                                                                                      NIYKILLLQAYRFHACVLQLPFHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAK
                                                                                                                    GARRRGGSASRSLPLPKRPRRGAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARPA
                                                                                                                                                                                                 QLRPSFLLSSLRPSLTGARRLVETIFLGSRPWMPGTPRRLPRLPQRYWQMRPLFLELLGN
                                                                                                                                                                                                                                         HAQCPYGVLLKTHCPLRAAVTPAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSPW
                                                                                                                                                                                                                                                                                         QDPPPELYFVKVDVTGAYDTIPQDRLTEVIASIIKPQNTYCVRRYAVVQKAAHGHVRKAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KSHVSTLTDLQPYMRQFVAHLQETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHHAVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IRGKSYVQCQGIPQGSILSTLLCSLCYGDMENKLFAGIRRDGLLLRLVDDFLLVTPHLTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LEVQSDYSSYARTSIRASLTFNRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NIYKILLLQAYRFHACVLQLPFHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAK
QRGDPAAFRALVAQCLVCVPWDARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAF
                                                                             VLVAPSCAYQVCGPPLYQLGAATQARPPPHASGPRRRLGCERAWNHSVREAGVPLGLPAP
                                                                                                                                                                                                                                                                                                                                                                                                   VGARTFRREKRAERLTSRVKALFSVLNYERARRPGLLGASVLGLDDIHRAWRTFVLRVRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAAGPLPSEAVQWLCHQAFLLKLTRHRVTYVPLLGSLRTAQTQLSRKLPGTTLTALEAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        62 QRGDPAAFRALVAQCLVCVPWDARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAF
                                       GFALLDGARGGPPEAFTTSVRSYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCALF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1273 NPALPSDFKTILD 1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1213
                                                                             313
                                                                                                182
                                                                                                                    373
                                                                                                                                       242
                                                                                                                                                           433
                                                                                                                                                                                                                     362
                                                                                                                                                                                                                                                                                                 482
                                                                                                                                                                                                                                                                                                                                        542
                                                                                                                                                                                                                                                                                                                                                           733
                                                                                                                                                                                                                                                                                                                                                                              602
                                                                                                                                                                                                                                                                                                                                                                                                  793
                                                                                                                                                                                                                                                                                                                                                                                                                     662
                                                                                                                                                                                                                                                                                                                                                                                                                                         853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1082
 193
                                                                                                                                                                             302
                                                                                                                                                                                                493
                                                                                                                                                                                                                                        553
                                                                                                                                                                                                                                                           422
                                                                                                                                                                                                                                                                               613
                                                                                                                                                                                                                                                                                                                     673
                                                                                                                                                                                                                                                                                                                                                                                                                                                             722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        862
                                      253
                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           용
                    å
                                     셤
                                                        ö
                                                                           g
                                                                                                 ð
                                                                                                                  a
                                                                                                                                       à
                                                                                                                                                          용
                                                                                                                                                                             ò
                                                                                                                                                                                             셤
                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                    용
                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ο
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 oy
og
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
```

```
APPLICANT: Cech, Thomas R.
APPLICANT: Cech, Thomas R.
APPLICANT: Nakamura, Toru
APPLICANT: Chapman, Karen B.
APPLICANT: Chapman, Karen B.
APPLICANT: Harley, Calvin B.
APPLICANT: Andrews, William
TITLE OF INVENTION: Telomerase Reverse Transcriptase
NUMBER OF SEQUENCES: 170
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/911,312
                                                                                                                                                                                                                                                                                                             ADDRESSEE: Townsend and Townsend and Crew LLP STREET: Two Embarcadero Center, Eighth Floor CITY: San Francisco STATE: California
                                                              Ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME: Einhorn, Gregory P.
REGISTRATION NUMBER: 38,440
REFERENCE/DOCKET NUMBER: 015389-002500US
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 14-AUG-1997
FILING DATE: 14-AUG-1997
CLASSIFICATION: 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-OCT-1996
PROR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,410
FILING NAME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 18-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/915,503
FILING DATE: 14-AUG-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US 08/912,951
FILING DATE: 14-AUG-1997
                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PC COMPATIBLE OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                              Sequence 32, Application US/08911312
                  1
                                                                                                                                      Sequence 32, Application US/08911312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (415) 576-0200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FORMATION FOR SEO ID NO: 32
SEQUENCE CHARACTERISTICS:
LENGTH: 1285 amino acids
                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO:
                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
amino acid
                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                              COUNTRY: USA
ZIP: 94111-3834
                                             STRANDEDNESS
```

```
2
                                                                                                                                            XXXXXX
       962
                      1153
                                     1022
                                                                                                                      RESULT
                                                                                                                            셤
                                                 g
                                                                              g
                                    ò
                                                                 à
                                                                                              ò
                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IRGKSYVQCQGIPQGSILSTLLCSLCYGDMENKLFAGIRRDGLLLRLVDDFLLVTPHLTH 1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1093 LEVQSDYSSYARTSIRASLTFNRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCT 1152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AKTFLRTLVRGVPEYGCVVNLRKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRT 1092
                                                                                                                                               852
                                                                                                                                                                                                                                                                                                                                                                                                                       QDPPPELYFVKVDVTGAYDTIPQDRLTEVIASIIKPQNTYCVRRYAVVQKAAHGHVRKAF 912
                                                                                                                                                                                                                                                                                                                                                                                                                                                   KSHVSTLTDLQPYMRQFVAHLQETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHHAVR 972
                                                                                                                   GFALLDGARGGPPEAFTTSVRSYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCALF 312
                                                                                                                                                                                                                                          552
                                                                                                                                                                                                                                                612
                                                                                                                                                                                                                                                                             QVYGFVRACLRRLVPPGLWGSRHNERRFLRNTKKFISLGKHAKLSLQELTWKMSVRDCAW 672
                                                                                                                                                                                                                                                                                                                  541
                                                                                                                                                                                                                                                                                                                                LRRSPGVGCVPAAEHRLREEILAKFLHWLMSVYVVELLRSFFYVTETTFQKNRLFFYRKS 732
                                                                                                                                                                                                                                                                                                                                        VWSKLQSIGIRQHLKRVQLRELSEAEVRQHREARPALLTSRLRFIPKPDGLRPIVNMDYV 792
                                                                                                                                                                                                                                                                                                                                                                            661
                                                                                                                                                                                                                                                                                                                                                                                                  781
                                                         133 ASTQRCVLLRTWEALAPATPAMPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLV 192
                                                                                      193 QRGDPAAFRALVAQCLVCVPWDARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAF 252
                                                                                              EEATSLEGALSGTRHSHPSVGRQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKE 492
                                                                                                                                                                                                                  61
                                            Gaps
                                                                  2 ASGORCVLLATWEALAPATPAMPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLV
                                                                                                                                                                                                                                                                                                           HAQCPYGVLLKTHCPLRAAVTPAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSPW
                                                                                                                                                                                                                                                                                                                                                                                          VGARTFRREKRAERLTSRVKALFSVLNYERARRPGLLGASVLGLDDIHRAWRTFVLRVRA
                                                                                                                                                                                                                                                                                                                                                                                                                              IRGKSYVQCQGIPQGSILSTLLCSLCYGDMENKLFAGIRRDGLLLRLVDDFLLVTPHLTH
                                                                                                                                                                                                                                         QLRPSFLLSSLRPSLTGARRLVET1FLGSRPWMPGTPRRLPRLPQRYWQMRPLFLELLGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                            Length 1285;
                                           Indels
                           Score 8607; DB 13;
Pred. No. 0.00e+00;
0; Mismatches 1;
       LE TYPE: protein
1285 AA; 143529 MW; 8449280 CN;
                            Query Match

Best Local Similarity 99.9%;
Matches 1152; Conservative
TOPOLOGY: linear
       MOLECULE
              SEQUENCE
                                                                                                                                                                                                                                                                                                  613
                                                                                                                                                                                                                                                                                                                                673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                842
                                                                                                    62
                                                                                                                                                                                                           433
                                                                                                                                                                                                                         302
                                                                                                                                                                                                                                                                     553
                                                                                                                                                                                                                                                                                   422
                                                                                                                                                                                                                                                                                                                482
                                                                                                                                                                                                                                                                                                                                              542
                                                                                                                                                                                                                                                                                                                                                            733
                                                                                                                                                                                                                                                                                                                                                                           602
                                                                                                                                                                                                                                                                                                                                                                                                        662
                                                                                                                                                                                                                                                                                                                                                                                                                                    722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1033
                                                                                                                                                                                                                                                                                                                                                                                          793
                                                                                                                                                                                                                                                                                                                                                                                                                       853
                                                                                                                                                                                                                                                                                                                                                                                                                                                    913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             902
                                                                                                                   253
                                                                                                                                                                                                                                        493
8000
                                                          셤
                                                                                    2
                                                                                                     ò
                                                                                                                   8
                                                                                                                                               8
                                                                                                                                                              ò
                                                                                                                                                                            8
                                                                                                                                                                                            ò
                                                                                                                                                                                                         g
                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                               පු
                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                          음
                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ద
                                                                                                                                 ò
```

```
HUMAN TELOMERASE CATALYTIC SUBUNIT: DIAGNOSTIC AND THERAPEUTIC METHODS
                                                                                                       1081
                                                         MEDIUM TYPE: FLOPPY disk
COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/912,951
FILING DATE: 14-4NG-1997
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
CLASSIFICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
CLASSIFICATION NUMBER: US 08/844,419
FILING DATE: 13-APR-1997
CLASSIFICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION NUMBER: US 08/724,643
FILING DATE: 18-APR-1997
CLASSIFICATION NUMBER: US 08/724,643
FILING DATE: 11-APR-1997
CLASSIFICATION NUMBER: US 08/724,643
FILING DATE: US 08/724,643
FILING DATE: US 08/724,643
FILING DATE: US 08/724,643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    I.I.P
                                                                                                                                                                                                                                                                                                                                                                 Ä.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: Townsend and Townsend and Crew
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STREET: Two Embarcadero Center, 8th Floor CITY: San Francisco STATE: California
                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    United States of America
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              314, Application US/08912951 INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 314, Application US/08912951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Cech, Thomas R. APPLICANT: Linguer, Joachim APPLICANT: Chapmen, Toru APPLICANT: Chapmen, Raren B. APPLICANT: Makaura, Toru APPLICANT: Morin, Greeg B. APPLICANT: Morin, Greeg B. APPLICANT: Andrews, William H. TITLE OF INVENTION: THERAPEUTIC NUMBER OF SEQUENCES: 335
                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           California
                                                                                                                                                                                                                                 1273 NPALPSDFKTILD 1285
                                                                                                                                                                                                                                                         94111
                                                                                                                                                                                                                                                                                                                                                             US-08-912-951-314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
```

```
1082 GAAGPLPSEAVQWLCHQAFLLKLTRHRVTYVPLLGSLRTAQTQLSRKLPGTTLTALEAAA 1141
973 IRGKSYVQCQGIPQGSILSTLLCSLCYGDMENKLFAGIRRDGLLLRLVDDFLLVTPHLTH
                                            LEVQSDYSSYARTSIRASLTFNRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCT
                                                                                                                                                                                                        GAAGPLPSEAVQWLCHQAFLLKLTRHRVTYVPLLGSLRTAQTQLSRKLPGTTLTALEAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Reverse Transcriptase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
PELLCATION NUMBER: US/08/911,312
FILING DATE: 14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SurkET: Two Embarcadero Center, Eighth Floor CITY: San Francisco STATE: California
                                                                                                                                                                                                                                                                                                                A.
                                                                                                                                                                                                                                                                                                                1407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 14-ANG-197
CLASSIFICATION: 536
PRODE APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-OCT-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/86,017
FILING DATE: 25-APR-1997
                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ZIP: 94111-3834
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Moramura, Toru
APPLICANT: Morin, Gregg B.
APPLICANT: Andrews, William
ATTILE OF INVENTION: Telomerase Re
NUMBER OF SEQUENCES: 170
                                                                                                                                                                                                                                                                                                                                                                                                   Application US/08911312
                                                                                                                                                                                                                                                                                                                                                                              Sequence 55, Application US/08911312
                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                1273 NPALPSDFKTILD 1285
                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                     JT 11
US-08-911-312-55
                                                                                                                                                                                                                                                                                                                                                                                                   Seguence 55,
                                                                                                                                                                                                                                                                                                                                      XXXXXX
            782
                                                                                                                     1093
                                                                                                                                                              1153
                                                                                                                                                                                                       1213
                                                                                                                                                                                   1022
                                                                                                                                                                                                                                                                                                   요
                                                                         ద
                                                                                                                                                                                                                                               g
                                                      ò
                                                                                                ð
                                                                                                                                         ò
                                                                                                                                                                                   à
                                                                                                                                                                                                                           ò
                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                        HAQCPYGVLLKTHCPLRAAVTPAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLROHSSPW 612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    133 ASTORCVLLRTWEALAPATPAMPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPOGWRLV 192
                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 541
                                                                                                                                                                                                                                                                                                                                                                                      373 GARRRGGSASRSLPLPKRPRRGAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARPA 432
                                                                                                                                                                                                                                                                                                                                                                                                                                EEATSLEGALSGTRHSHPSVGRQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKE 492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QLRPSFILSSLRPSLTGARRLVETIFLGSRPWMPGTPRRLPRLPQRYWQMRPLFLELLGN 552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VWSKLQSIGIRQHLKRVQLRELSEAEVRQHREARPALLTSRLRFIPKPDGLRPIVNMDYV 792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QDPPPELYFVKVDVTGAYDTIPQDRLTEVIASIIKPQNTYCVRRYAVVQKAAHGHVRKAF 912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           913 KSHVSTLTDLQPYMRQFVAHLQETSPLRDAVVIEOSSSLNEASSGLFDVFLRFMCHHAVR 972
                                                                                                                                                                                                                           2 ASGORCVLLRTWEALAPATPAMPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLV 61
                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                           QVYGEVRACLRRLVPPGLMGSRHNERRFLRNTKKFISLGKHAKLSLQELTWKMSVRDCAW
                                                                                                                                                                                                                                                                                                                                           313 VLVAPSCAYQVCGPPLYQLGAATQARPPPHASGPRRRLGCERAWNHSVREAGVPLGLPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VGARTFRREKRAERLTSRVKALFSVLNYERARRPGLLGASVLGLDDIHRAWRTFVLRVRA
                                                                                                                                                                                             ö
                                                                                                                                                                         Length 1285;
                                                                                                                                                                                            Indels
                                                                                                                                                                       Score 8607; DB 13;
Pred. No. 0.00e+00;
0; Mismatches 1;
       NAME: Apple, Randolph T.
REGISTRATION NUMBER: 36,429
REFERENCE/DOCKET NUMBER: 015389-002600US
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
TELEPHONE: (415) 576-0300
INFORMATION FOR SEQ ID NO: 314:
SEQUENCE CHARACTERISTICS:
                                                                                                                                       MOLECULE TYPE: protein
ENCE 1285 AA; 143529 MW; 8449280 CN;
                                                                                               LENGTH: 1285 amino acids
 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                      Query Match 99.8%;
Best Local Similarity 99.9%;
Matches 1152; Conservative
                                                                                                         amino acid
                                                                                                                             linear
                                                                                                                   STRANDEDNESS
                                                                                                                              TOPOLOGY:
                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                           242
                                                                                                                                                                                                                                                                                                                                                                                                                               433
                                                                                                                                                                                                                                                                                                                                                                                                                                                   302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  853
                                                                                                                                                                                                                                                          193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    722
                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
888888888888888888
                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                     .<u>a</u>
                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                           용
                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
```

961

1154

901

1094

1274 1021 1334 1081

```
1155 AKTFLRTLVRGVPEYGCVVNLRKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRT
                                                                                                                                                                                                                                                                                    1022 NIYKILLLQAYRFHACVLQLPFHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAK
                                          VGARTFRREKRAERLTSRVKALFSVLNYERARRPGLLGASVLGLDDIHRAWRTFVLRVRA
                                                                                                                                                      KSHVSTLTDLQPYMRQFVAHLQETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHHAVR
                                                                                                                                                                                                                IRGKSYVQCQGIPQGSILSTLLCSLCYGDMENKLFAGIRRDGLLLRLVDDFLLVTPHLTH
                                                                                                                                                                                                                                                                                                                            1215 LEVQSDYSSYARTSIRASVTFNRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCT
                                                                                                                                                                                                                                                                                                                                                                                    NIYKILLLQAYRFHACVLQLPFHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAK
                                                                                                                                                                                                                                                                                                                                                                                                                                           GAAGPLPSEAVQWLCHQAFLLKLTRHRVTYVPLLGSLRTAQTQLSRKLPGTTLTALEAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 628, Application US/08974549
GENERAL INFORMATION:
APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Chapman, Karen B.
APPLICANT: Morin, Greeg B.
APPLICANT: Morin, Greeg B.
APPLICANT: Harley, Calvin B.
APPLICANT: Andrews, William H.
TITLE OF INVENTION: Human Telomerase Catalytic Subunit
NUMBER OF SEQUENCES: 726
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STREET: Two Embarcadero Center, Eighth Floor CITY: San Francisco STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1407 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 628, Application US/08974549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1395 NPALPSDFKTILD 1407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ZIP: 94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1142 NPALPSDFKTILD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JT 12
US-08-974-549-628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 XXXXXX
              . 209
                                                                                                                                                      1035
                                                                                                                                                                                                                                                                                                                                                        962
                                                                                                                                                                                                                                                                                                                                                                                    1275
                                                                                                                                                                                                              1095
                                          915
                                                                                                                                                                                                                                                                                                                                                                                                                                           1335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                    a
                                                                   ò
                                                                                            셤
                                                                                                                         ò
                                                                                                                                                     셤
                                                                                                                                                                                 ò
                                                                                                                                                                                                             g
                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                      374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            62 QRGDPAAFRALVAQCLVCVPWDARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAF 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  375 GFALLDGARGGPPEAFTTSVRSYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCALF 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EEATSLEGALSGTRHSHPSVGRQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKE 614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QLRPSFLLSSLRPSLTGARRLVETIFLGSRPWMPGTPRRLPRLPQRYWOMRPLFLELLGN 674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HAQCPYGVLLKTHCPLRAAVTPAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSPW 734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QVYGFVRACLRRLVPPGLWGSRHNERRFLRNTKKFISLGKHAKLSLQELTWKMSVRDCAW 794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             855 VWSKLQSIGIRQHLKRVQLRELSEAEVRQHREARPALLTSRLRFIPKPDGLRPIVNMDYV 914
                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LRRSPGVGCVPAAEHRLREEILAKFLHWLMSVYVVELLRSFFYVTETTFQKNRLFFYRPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             315 ORGDPAAFRALVAQCLVCVPWDARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           435 VLVAPSCAYQVCGPPLYQLGAATQARPPPHASGPRRRLGCERAWNHSVREAGVPLGLPAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   495 GARRRGGSASRSLPLPKRPRRGAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARPA
                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                               Length 1407;
                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                 PRILING ADMINISTRATION DATA:
PRICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/912,951
FILING DATE: 14-MG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/915,503
FILING DATE: 14-MG-1997
ATTORNEY/AGENT INFORMATION:
NAME: Einhorn, Gregory P.
RECISTRATION NUMBER: 38,440
RECISTRATION NUMBER: 38,440
RECISTRATION NUMBER: 38,440
RECISTRATION NUMBER: 38,440
RELEPHONE: (415) 576-0300
TELEPHONE: (415) 576-0300
INFORMATION FOR SEQ ID NO: 55:
                                                                                                                                                                                                                                                                                                                                                                                               Score 8590; DB 13;
Pred. No. 0.00e+00;
1; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                      E TYPE: protein
1407 AA; 157668 MW; 10134798 CN;
             APPLICATION NUMBER: US 08/851,843
                                                                                                                                                                                                                                                                               SEQUENCE CHARACTERISTICS:
LENGTH: 1407 amino acids
                          06-MAY-1997
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                               Query Match 99.6%;
Best Local Similarity 99.7%;
Matches 1150; Conservative
                                                                                                                                                                                                                                                                                                             amino acid
                                                                                                                                                                                                                                                                                                                                         linear
                             FILING DATE:
                                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                        TOPOLOGY:
MOLECULE TYP
                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 615 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     795
```

윱 ò 원 ò 셤 ö 8 à a

ô

ద ò 셤 ö 셤 ð 유

à

셤

674

421

614 361 734

541

794

481

914

601

```
1095 IRGKSYVQCQGIPQGSILSTLLCSLCYGDMENKLFAGIRRDGLLLRLVDDFLLVTPHLTH 1154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VLVAPSCAYQVCGPPLXQLGAATQARPPHASGPRRRLGCERAWNHSVREAGVPLGLPAP
                                                                            242 GARRRGGSASRSLPLPRKRPRRGAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARPA
                                                                                                                                        KSHVSTLTDLQPYMRQFVAHLQETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHHAVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NIYKILLLQAYRFHACVLQLPFHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAK
                              182 VLVAPSCAYQVCGPPLYQLGAATQARPPPHASGPRRRLGCERAWNHSVREAGVPLGLPAP
                                                                                                                         EEATSLEGALSGTRHSHPSVGRQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKE
                                                                                                                                                                                     QLRPSFLLSSLRPSLTGARRLVETIFLGSRPWMPGTPRRLPRLPQRYWQMRPLFLELLGN
                                                                                                                                                                                                     HAQCPYGVLLKTHCPLRAAVTPAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSPW
                                                                                                                                                                                                                                                                QVYGFVRACLRRLVPPGLWGSRHNERRFLRNTKKFISLGKHAKLSLQELTWKMSVRDCAW
                                                                                                                                                                                                                                                                                                                                                                       LRRSPGVGCVPAAEHRLREEILAKFLHWLMSVYVVELLRSFFYVTETTFQKNRLFFYRPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QDPPPELYFVKVDVTGAYDT I PQDRLTEVI ASI I KPQNTYCVRRYAVVQKAAHGHVRKAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AKTFLRTLVRGVPEYGCVVNLRKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LEVQSDYSSYARTSIRASVTFNRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GARRRGGSASRSLPLPKRPRRGAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1395 NPALPSDFKTILD 1407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1142 NPALPSDFKTILD 1154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JT 13
US-08-912-951-334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1155
                                                                                                                         555
                                                                                                                                                                                   615
                                                                                                                                                                                                                                              675
                                                                                                                                                                                                                                                                                                         735
                                                                                                                                                                                                                                                                                                                                      482
                                                                                                                                                                                                                                                                                                                                                                                                    542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1022
 435
                                                                                                                                                                                                                  362
                                                            495
                                                                                                                                                                                                                                                                           422
                                                                                                                                                                                                                                                                                                                                                                      795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        975
                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                               ò
                                                          g
                                                                                         δ
                                                                                                                       g
                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          255 ASTORCVLLRTWEALAPATPAMPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLV 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QRGDPAAFRALVAQCLVCVPWDARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAF 374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GFALLDGARGGPPEAFTTSVRSYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCALF 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           R INFORMATION: 5' untranslated region of hTRT mRNA R INFORMATION: hTRT protein sequence" 1407 Aa; 157668 MW; 10134798 CN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 1407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note= "fusion protein composed of
enhanced green fluorescent protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 8590; DB 18;
Pred. No. 0.00e+00;
1; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        015389-002610US
                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: WO PCT/US97/17618
FILING DATE: 01-OCT-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: WO PCT/US97/17885
                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAX-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/911,312
FILING DATE: 14-MG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/912,951
                                      PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
                                                                                                                                                                                          PILING DATE: 06-MAY-1997
US/08/974,549
                                                                                                                    FILING DATE: 18-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-ARR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US 08/915,503 FILING DATE: 14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 628:
SEQUENCE CHARACTERISTICS
LENGTH: 1407 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME: Apple, Randolph Ted
REGISTRATION NUMBER: 36,429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE/DOCKET NUMBER: 01
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 14-AUG-1997 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 01-OCT-1997
ATTORNEY/AGENT INFORMATION:
               19-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 99.6%;
Best Local Similarity 99.7%;
Matches 1150; Conservative
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCATION: 1.1407
OTHER INFORMATION:
OTHER INFORMATION:
OTHER INFORMATION:
OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY: Protein
LOCATION: 1..1407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                              CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                375
```

1034

1094

841

1081 1394 1141

> 셤 å ద ò 유 ð

1334

1021

1214

901

```
1095 IRGKSYVQCQGIPQGSILSTLLCSLCYGDMENKLFAGIRRDGLLLRLVDDFLLVTPHLTH 1154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1155 AKTFLRTLVRGVPEYGCVVNLRKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRT 1214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LEVQSDYSSYARTSIRASVTFNRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCT 1274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NIYKILLLQAYRFHACVLQLPFHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAK 1334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1022 NIYKILLIQAYREHACVLQLPFHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAK 1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1335 GAAGPLPSEAVQWLCHQAFLLKLTRHRVTYVPLLGSLRTAQTQLSRKLPGTTLTALEAAA 1394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            975 QDPPPELYFVKVDVTGAYDTIPQDRLTEVIASIIKPQNTYCVRRYAVVQKAAHGHVRKAF 1034
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1035 KSHVSTLTDLQPYMRQFVAHLQETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHHAVR 1094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             196
                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                                             614
                                                                                                                                                                                                                                                                                                                                                                                              674
                                                                                                                                                                                                                                                                                                                                                                                                               794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             314
                                                                                 62 QRGDPAAFRALVAQCLVCVPWDARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAF 121
                                                                                                                                 434
                                                                                                                                                435 VLVAPSCAYQVCGPPLYQLGAATQARPPPHASGPRRRLGCERAWNHSVREAGVPLGLPAP 494
                                                                                                                                                                                                                                                              554
                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              915 VGARTFRREKRAERLTSRVKALFSVLNYERARRPGLLGASVLGLDDIHRAWRTFVLRVRA 974
495 GARRRGGSASRSLPLPKRPRRGAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARPA
                                                                                                                                                                                                                                                                                                                                                                                              QLRPSFLLSSLRPSLTGARRLVETIFLGSRPWMPGTPRRLPRLPQRYWQMRPLFLELLGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             855 VWSKLQSIGIRQHLKRYQLRELSEAEVRQHREARPALLTSRLRFIPKPDGLRPIVNMDYV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               242 GARREGGSASRSLPLPKRPRRGAAPEPERTPVGGGSWAHPGRTRGPSDRGFCVVSPARPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          375 GFALLDGARGGPPEAFTTSVRSYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCALF
                                                                315 QRGDPAAFRALVAQCLVCVPWDARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAF
                                                                                                                                                                                                                                                                                                                                                                                              615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                         8
                                                                                               ò
                                                                                                                                                               ò
                                                                                                                                                                                          용
                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                              유
                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                       APPLICANT: Cech, Thomas R.
APPLICANT: Cech, Thomas R.
APPLICANT: Linguer, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Nakamura, Toru
APPLICANT: Morin, Gregg B.
APPLICANT: Morin, Gregg B.
APPLICANT: Morin, Gregg B.
APPLICANT: Harley, Callyin
APPLICANT: HUMAN TELOMERASE CATALYIIC SUBUNIT: DIAGNOSTIC AND TITLE OF INVENTION: THERAPEUTIC METHODS
NUMBER OF SEQUENCES: 335
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 1407
                                                                                                                                                                                                                                                                                                                                                                        ZIP: 94111
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: Isloppy disk
COMPUTER: PERPORTIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/912,951
FILING DATE: 14 ANG-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                             LLP
                                                                                                                                                                                                                                                                                          ADDRESSEE: Townsend and Townsend and Crew STREET: Two Embarcadero Center, 8th Floor CITY: San Francisco STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 8590; DB 13;
Pred. No. 0.00e+00;
1; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Apple, Randolph T.
REGISTRATION NUMBER: 36,429
REFERENCE/DOORET NUMBER: 015389-002600US
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LE TYPE: protein
1407 AA; 157668 MW; 10134798 CN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18 APR-1997
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-OCT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILLIO DATE: 06-MX-1997
CLASSIFCATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
                                                                                                                                                                                                                                                                                                                                                            United States of America
                                                                              Sequence 334, Application US/08912951 GENERAL INFORMATION:
                                               Sequence 334, Application US/08912951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEPAONE: (415) 576-0200
TELEFAX: (415) 576-0300
INPORMATION FOR EQ ID NO: 334:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 1407 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match

99.6%;

Best Local Similarity 99.7%;

Matches 1150; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRANDEDNESS
                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
```

```
ATTORNEY/AGENT INFORMATION:
                                                                                                                        TYPE: amino acid
TOPOLOGY: linear
  FILING DATE:
                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
 ò
                                                                                                                                                                                                                                                                    유
                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
1082 GAAGPLPSEAVOWLCHQAFLLKLTRHRVTYVPLLGSLRTAQTQLSRKLPGTTLTALEAAA 1141
                                                                                                                                                                                 Sequence 2, Application US/08974549
GENERAL INFORMATION:
APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Morin, Garega B.
APPLICANT: Morin, Garega B.
APPLICANT: Harley, Calvin B.
APPLICANT: Harley, Calvin B.
TITLE OF INVENTION: Human Telomerase Catalytic Subunit NUMBER OF SEQUENCES: 26
CORRESPONDENCE: ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                       COMPUTER: U.S.A.

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM FC. Compatible
OPERATING SYSTEM: PC. FDGS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/974,549
FILING DATE: 19-NOV-1997
CLASSIFICATION: 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
FILING DATE: 18-APR-1997
                                                                                                                                                                                                                                                                                                                       E: Townsend and Townsend and Crew LLP
Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: WO PCT/US97/17618
FILING DATE: 01-OCT-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO PCI/US97/17885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR DATE: 18-787-1297
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: US 08/894,050
FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/911,312
FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/911,312
FILING DATE: 14-AUG-1997
FILING DATE: 14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    UMBER: US 08/915,503
14-AUG-1997
                                                                                                  PRT;
                                                                                                                                                                   Sequence 2, Application US/08974549
                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                  STREET: Two Embarcac
CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER:
                               1395 NPALPSDFKTILD 1407
                                                     1142 NPALPSDFKTILD 1154
                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE:
                                                                                                                                                                                                                                                                                                                        ADDRESSEE:
                                                                                                US-08-974-549-2
                                                                                                                                                                                                                                                                                                                                                                   COUNTRY:
                                                                                                                        XXXXXX
                                                                                        RESULT
                                g
                                                     ò
```

```
480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181 ATQARPPHASGPRRRLGCERAWNHSVREAGVPLGLPAPGARRRGGSASRSLPLPKRPRR 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           781 QETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHHAVRIRGKSYVQCQGIPQGSILSTL 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                               61 DARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAFGFALLDGARGGPPEAFTTSVR 120
                                                                                                                                                                                                                                                                                                                                                                                                     13 MPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLVQRGDPAAFRALVAQCLVCVPW 82
                                                                                                                                                                                                                                                                                                                                                                             1 MPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLVQRGDPAAFRALVAQCLVCVPW 60
                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241 GAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARPAEEATSLEGALSGTRHSHPSVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                541 LAKFLHWLMSVYVVELLRSFFYVTETTFQKNRLFFYRKSVWSKLQSIGIRQHLKRVQLRE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LSEAEVROHREARPALLTSRLRFIPKPDGLRPIVNMDYVVGARTFRREKRAERLTSRVKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 683 LFSVLNYERARRPGLLGASVLGLDDIHRAWRTFVLRVRAQDPPPELYFVKVDVTGAYDTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PQDRLTEVIASI I KPQNTYCVRRYAVVQKAAHGHVRKAFKSHVSTLTDLQPYMRQFVAHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301 RQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKEQLRPSFLLSSLRPSLTGARRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361 VETIFLGSRPWMPGTPRRLPRLPQRYWQMRPLFLELLGNHAQCPYGVLLKTHCPLRAAVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            421 PAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSPWQVYGFVRACLRRLVPPGLWGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             481 RHNERRFLRNTKKFISLGKHAKLSLQELTWKMSVRDCAWLRRSPGVGCVPAAEHRLREEI
                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                              Length 1132;
                                                                                                                                                                                                                                                                                                                                     0; Indels
NAME: Apple, Randolph Ted
REGISTRATION NUMBER: 36,429
REFERENCE/DOCKET NUMBER: 015389-002610US
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 1132 amino acids
                                                                                                                                                                                                                                                                                          Query Match 98.2%; Score 8465; DB 18;
Best Local Similarity 100.0%; Pred. No. 0.00e+00;
Matches 1132; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                              MOLECULE TYPE: protein
FENCE 1132 AA; 126995 MW; 6588209 CN;
```

```
SYLPNTVIDALRGSGAWGLLLRRVGDDVLVHLLARCALFVLVAPSCAYQVCGPPLYQLGA 180
                                                                                                                                                                                                                                                                                                                                                                                                                      361 VETIFLGSRPWMPGTPRRLPRLPQRYWQMRPLFLELLGNHAQCPYGVLLKTHCPLRAAVT 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSPWQVYGFVRACLRRLVPPGLWGS 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LAKFLHWLMSVYVVELLRSFFYVTETTFQKNRLFFYRKSVWSKLQSIGIRQHLKRVQLRE 600
                                                                                                                                                                                                                                                                                                                                                             DARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAFGFALLDGARGGPPEAFTTSVR 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKEQLRPSFLLSSLRPSLTGARRL 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LSEAEVROHREARPALLTSRLRFIPKPDGLRPIVNMDYVVGARTFRREKRAERLTSRVKA 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LFSVLNYERARRPGLLGASVLGLDDIHRAWRTFVLRVRAQDPPPELYFVKVDVTGAYDTI 720
                                                                                                                                                                                                                                                                                                                              23 MPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLVQRGDPAAFRALVAQCLVCVDW 82
                                                                                                                                                                                                                                                                                                                1 MPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLVQRGDPAAFRALVAQCLVCVPW 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RHNERRFLRNTKKFI SLGKHAKLSLQELTWKMSVRDCAWLRRSPGVGCVPAAEHRLREEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 1132;
                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                  Score 8465; DB 13;
Pred. No. 0.00e+00;
0; Mismatches 0;
                                                                                                                            015389-002600US
                                                                                                                                                                                                                   TOPOLOGY: linear
MOLECULE TYPE: protein
FENCE 1132 AA; 126995 MW; 6588209 CN;
                                CLASSIFICATION: 435
PRIOR APPLICATION UNBER: US 08/724,643
PILING DATE: 01-OCT-1996
CLASSIFICATION: 435
              US 08/844,419
                                                                                       ATTORNEY AGENT INFORMATION:
NAME: Apple, Randolph T.
REGISTRATION NUMBER: 36,429
REFERENCE/DOCKET NUMBER: 0153E
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 1132 amino acids
                    FILING DATE: 18-APR-1997
  PRIOR APPLICATION DATA: APPLICATION NUMBER: I
                                                                                                                                                                                                                                                                   Query Match 98.2%;
Best Local Similarity 100.0%;
Matches 1132; Conservative
                                                                                                                                                                                                            amino acid
                                                                                                                                                                                                             TYPE:
                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            563
                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        623
  셤
                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Cech, Thomas R.
APPLICANT: Cingrer, Joachim
APPLICANT: Lingner, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Nakamura, Toru
APPLICANT: Capman, Karen B.
APPLICANT: Morin, Gregg B.
APPLICANT: Harley, Calvin
APPLICANT: HUMAN ELOMERASE CATALYTIC SUBUNIT: DIAGNOSTIC AND TITLE OF INVENTION: THERAPEUTIC METHODS
TITLE OF EXQUENCES: 335
CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Crew LLP
                                                                                                                            1020
                                                                                                                                        1043 FHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAKGAAGPLPSEAVQWLCHQAFLL 1102
                                 960
                                                                                          803 QETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHHAVRIRGKSYVQCQGIPQGSILSTL
                                                                              RKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRTLEVQSDYSSYARTSIRASLTF
                                                                                                                            NRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCTNIYKILLLQAYRFHACVLQLP
                                                                                                                                                                        FHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAKGAAGPLPSEAVQWLCHQAFLL
1081 KLTRHRVTYVPLLGSLRTAQTQLSRKLPGTTLTALEAAANPALPSDFKTILD 1132
                                                                                                                                                                                                                                ZIE: 9411
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                          Ą
                                                                                                                                                                                                                                                                                        1132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US/08/912,951
FILING DATE: 14-AUG-1997
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    United States of America
                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                Sequence 2, Application US/08912951
GENERAL INFORMATION:
APPLICANT: Cech, Thomas R.
                                                                                                                                                                                                                                                                                                                                                            Sequence 2, Application US/08912951
                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION:
                                                                                                                                                                                                                                                                                       US-08-912-951-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY:
                                                                                                                                                                                                                                                                                                                XXXXXX
                                                                               901
                                                                                                    923
                                                                                                                          196
                                                                                                                                                 983
                                                                                                                                                                         1021
                                                                                                                                                                                                                                                                            셤
                                                                            셤
                                                                                                                         셤
                                                                                                                                                                     g
                                                                                                                                                                                                                                           ô
                                                        ò
                                                                                                      ð
                                                                                                                                                 ò
                                                                                                                                                                                                8
```

Gaps

```
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                              TYPE:
                                                                                                                                                                                                                                                       SECUENCE
                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                    143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             323
                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                       203
                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
요
                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                 엄
                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                    요
                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                 1042
                                                                                                                                                                                                  1080
                                                     840
683 LFSVLNYERARRPGLLGASVLGLDDIHRAWRTFVLRVRAODPPPELYFVKVDVTGAYDTI 742
                                                                       862
                                                                                                                                                                                                QETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHHAVRIRGKSYVQCQGIPQGSILSTL
                                                              LCSLCYGDMENKLFAGIRRDGLLLRLVDDFLLVTPHLTHAKTFLRTLVRGVPEYGCVVNL
                                                                                                 RKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRTLEVQSDYSSYARTSIRASLTF
                                                                                                                                     NRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCTNIYKILLLQAYRFHACVLQLP
                                                                                                                                                                       PQDRLTEVIASIIKPQNTYCVRRYAVVQKAAHGHVRKAFKSHVSTLTDLQPYMRQFVAHL
                                                                                                                                                                                                                                   1081 KLTRHRVTYVPLLGSLRTAQTQLSRKLPGTTLTALEAAANPALPSDFKTILD 1132
                                                                                                                                                                                                                                             1103 KLTRHRVTYVPLLGSLRTAQTQLSRKLPGTTLTALEAAANPALPSDFKTILD 1154
                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Lingner, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Chapman, Karen B.
APPLICANT: Morin, Gregg B.
APPLICANT: Harley, Calvin B.
APPLICANT: Andrews, William
TITLE OF INVENTION: Telomerase Reverse Transcriptase
CORRESPONDENCE: 170
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/911,312
FILING DATE: 14-40G-1997
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, Eighth Floor
CITY: San Francisco
                                                                                                                                                                                                                                                                                          1132 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MBER: US 08/844,419
18-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996
                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                              Sequence 2, Application US/08911312 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                               Sequence 2, Application US/08911312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Floppy disk
                                                                                                                                                                                                                                                                                         STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 01-OCT-1
PRIOR APPLICATION DATA:
APPLICATION NUMBER: U
FILING DATE: 18-APR-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RY: USA
94111-3834
                                                                                                                                                                                                                                                                                         US-08-911-312-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STATE:
                                                                                                                                                                                                                                                                                                            XXXXXX
                                                                                                                           901
                                                                                                                                             923
                 721
                                                    781
                                                                                       841
                                                                                                                                                               961
                                                                                                                                                                                                                                                                                 RESULT
                                                   셤
                                                                                       셤
                                                                                                                          셤
                                                                                                                                                              요
                                                                                                                                                                                                요
                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                           à
                                                                      ò
                                                                                                         à
                                                                                                                                             à
                                                                                                                                                                               ò
ò
```

```
502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LAKFLHWLMSVYVVELLRSFFYVTETTFQKNRLFFYRKSVWSKLQSIGIRQHLKRVQLRE 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181 ATQARPPPHASGPRRRLGCERAWNHSVREAGVPLGLPAPGARRRGGSASRSLPLPKRPRR 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            263 GAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARPAEEATSLEGALSGTRHSHPSVG 322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSPWQVYGFVRACLRRLVPPGLWGS 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 DARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAFGFALLDGARGGPPEAFTTSVR 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCALFVLVAPSCAYQVCGPPLYQLGA 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAAPEPERT PVGQGSWAHPGRTRGPSDRGFCVVSPARPAEEAT SLEGALSGTRHSHPSVG 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKEQLRPSFLLSSLRPSLTGARRL 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VETIFLGSRPWMPGTPRRLPRLPQRYWQMRPLFLELLGNHAQCPYGVLLKTHCPLRAAVT 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             23 MPRAPRCRAVRSLLRSHYREVIPLATFVRRLGPQGWRLVQRGDPAAFRALVAQCLVCVPW 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLVQRGDPAAFRALVAQCLVCVPW 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RHNERRFLRNTKKFISLGKHAKLSLQELTWKMSVRDCAWLRRSPGVGCVPAAEHRLREEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 1132;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                      NAME: Einhorn, Gregory P.
REGISTRATION NUMBER: 38,440
REFERENCE/DOCKET NUMBER: 015389-002500US
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 8465; DB 13;
Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TOPOLOGY: linear
MOLECULE TYPE: protein
JENCE 1132 AA; 126995 MW; 6588209 CN;
                                       PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
                                                                                                                                                                                                                     FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/915,503
FILING DATE: 14-AUG-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                 UMBER: US 08/854,050
09-MAY-1997
  08/846,017
                                                                                                                                                                                                     US 08/912,951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
LENGTH: 1132 amino acids
APPLICATION NUMBER: US 01 FILING DATE: 25-APR-1997
                                                                                                                                                      FILING DATE: 09-MAY-1
PRIOR APPLICATION DATA:
APPLICATION NUMBER: C
                                                                                                            PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Match 98.2%;
Local Similarity 100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches 1132; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   amino acid
```

셤 ò 셤 ò 셤 ö g ò 용 ò g ò g ò 유 ð

```
61 DARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAFGFALLDGARGGPPEAFTTSVR 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 MPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLVQRGDPAAFRALVAQCLVCVPW 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121 SYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCALFVLVAPSCAYQVCGPPLYQLGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 1132;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R INFORMATION: /note= "human telomerase reverse
R INFORMATION: transcriptase (hTRT)"
1132 AA; 126995 MW; 6588209 CN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 8465; DB 14;
Pred. No. 0.00e+00;
0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME: Einhorn, Gregory P.
REGISTRATION NUMBER: 38,440
REFERENCE/DOCKET NUMBER: 015389-003110US
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: WO PCT/US97/17885
FILING DATE: 01-0CT-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/974,549
FILING DATE: 19-NOV-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/974,584
FILING DATE: 19-NOV-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/979,742
FILING DATE: 26-NOV-1997
ATTORNEY AGENT INFORMATION:
                                                                                                                                                                                                                                                       APPLICATION UNBER: US 08/912,951
FILNG DATE: 14-AUG-1997
PRIOR APPLICATION NDATA:
APPLICATION NDBER: US 08/915,503
FILNG DATE: 14-AUG-1997
PRIOR APPLICATION NUBER: WO PCT/US97/17618
FILING DATE: 01-OCT-1997
PRIOR APPLICATION DATA:
FILING DATE: 01-OCT-1996

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 08/844,419

FILING DATE: 18 -APR-1997

PRIOR APPLICATION NUMBER: US 08/846,017

FILING DATE: 25 -APR-1997

PRIOR APPLICATION NUMBER: US 08/851,843

FILING DATE: 06 -MAX-1997

FILING DATE: 06 -MAX-1997

FILING DATE: 06 -MAX-1997

FILING DATE: 09 -MAY-1997

FILING DATE: 09 -MAY-1997

FILING DATE: 09 -MAY-1997

FILING DATE: 09 -MAY-1997
                                                                                                                                                                                                               APPLICATION NUMBER: US 08/911,312
FILING DATE: 14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEPHONE: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1132 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MOLECULE TYPE: protein
                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 98.2%;
Best Local Similarity 100.0%;
Matches 1132; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: Protein
LOCATION: 1..1132
OTHER INFORMATION: OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: amino acid
STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGIH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                              1043 FHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAKGAAGPLPSEAVQWLCHQAFLL 1102
                                                                                                                                                                                                                                                                                                                                                                               NRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCTNIYKILLLQAYRFHACVLQLP 1020
                                                                                                                                                                                                                                                                                                                                                                                                                                          FHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAKGAAGPLPSEAVQWLCHQAFLL 1080
                                                                                                                                                                                                                                                                                                                 840
                                                                                                                                                                                                                                                       LCSLCYGDMENKLFAGIRRDGLLLRLVDDFLLVTPHLTHAKTFLRTLVRGVPEYGCVVNL 900
                                PQDRLTEVIASIIKPQNTYCVRRYAVVQKAAHGHVRKAFKSHVSTLTDLQPYMRQFVAHL 780
                                                                           LFSVLNYERARRPGLLGASVLGLDDIHRAWRTFVLRVRAQDPPPELYFVKVDVTGAYDTI 720
                                                                                                                                                   LSEAEVROHREARPALLTSRLRFIPKPDGLRPIVNMDYVVGARTFRREKRAERLTSRVKA
                                                                                           Sequence 3, Application US/09042460
GENERAL INFORMATION:
APPLICANT: Morin, Gregg B.
APPLICANT: Allsopp, Richard
APPLICANT: Depinho, Ronald
APPLICANT: Greenberg, Roger
TITLE OF INVENTION: Mouse Telomerase Reverse Transcriptase
CORRESPONDENCE: 101
CORRESPONDENCE: ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1081 KLTRHRVTYVPLLGSLRTAQTQLSRKLPGTTLTALEAAANPALPSDFKTILD 1132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: Petentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/042,460
FILING DATE: IG-MAR-1998
CLASSIFICATION: 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE: Townsend and Townsend and Crew LLP STREET: Two Embarcadero Center, Eighth Floor CITY: San Francisco STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 3, Application US/09042460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY: USA
ZIP: 94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JT 17
US-09-042-460-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            XXXXXX
                 601
                                                                                                                                                                                                                                                                                     863
                                           623
                                                                                                                                                                                                                                                                                                                                                                                                           983
                                                                                                                                                                                                                                                                                                                                                                                                                                          1021
                                                                         661
                                                                                                     683
                                                                                                                                                                743
                                                                                                                                                                                                                                                                                                                                                 923
                                                                                                                                                                                                                                                                                                                                                                               196
                                                                                                                                   721
                                                                                                                                                                                                                                                           841
                                                                                                                                                                                                                                                                                                                   901
```

ö

g

ö

ö

g

õ

ò ద ò g

8

ò

g

ò

쉽

ò

윱

ò

g ò g

ò

ద

ò ద

ð

ò 셤 ŏ g

ò

```
APPLICANT: Cech, Thomas R.
APPLICANT: Linguer, Joachim
APPLICANT: Nakamura, Foru
APPLICANT: Nakamura, Foru
APPLICANT: Maramura, Foru
APPLICANT: Morin, Gregg B.
APPLICANT: Harley, Calvin B.
APPLICANT: Andrews, William H.
TITLE OF INVENTION: Antisense Compositions for Detecting and
TITLE OF INVENTION: Inhibiting Telomerase Reverse Transcriptase
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                     Townsend and Crew LLP
Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME: Parent, Annette S.
REGISTRATION NUMBER: 42,058
REGISTRATION NUMBER: 015389-003600US
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
TELEPAX: (415) 576-0300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 01-OCT-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: WO PCT // CCT // 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: WO PCT/US97/17885 FILING DATE: 01-OCT-1997 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT ABPLICATION DATA:
APPLICATION NUMBER: US/09/052,919
FILING DATE: 31-MAR-1998
CLASSIETCATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996
PRIOR APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
FILING DATE: 18-APR-1997
FILING DATE: 25-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US 08/851,843
FILIND BATE: 06-MX-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILIND BATE: 09-MX-1997
PRIOR APPLICATION DATA:
APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/974,549
FILING DATE: 19-NOV-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/974,584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/915,503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/912,951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                 Sequence 2, Application US/09052919 GENERAL INFORMATION:
Sequence 2, Application US/09052919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 19-NOV-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: WO PO
                                                                                                                                                                                                                                                                                                                 ADDRESSEE: Townsend and
STREET: Two Embarcadero
CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (415) 576-0300
                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY: USA
ZIP: 94111-3834
COMPUTER READABLE FORM:
420
                                                                                                                                                                                                                                                                                                                                                             480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRTLEVQSDYSSYARTSIRASLTF 960
                                     GAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARPAEEATSLEGALSGTRHSHPSVG
                                                                                                                                                                                                                                                                                                 ATQARPPPHASGPRRLGCERAWNHSVREAGVPLGLPAPGARRRGGSASRSLPLPKRPRR
                                                                                                     GAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARPAEEATSLEGALSGTRHSHPSVG
                                                                                                                                                                                     RQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKEQLRPSFLLSSLRPSLTGARRL
                                                                                                                                                                                                                                                                         VETIFLGSRPWMPGTPRRLPRLPQRYWQMRPLFLELLGNHAQCPYGVLLKTHCPLRAAVT
                                                                                                                                                                                                                                                                                                                                                           PAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSPWQVYGFVRACLRRLVPPGLWGS
                                                                                                                                                                                                                                                                                                                                                                                                                                               RHNERRFLRNTKKFISLGKHAKLSLQELTWKMSVRDCAWLRRSPGVGCVPAAEHRLREEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LAKFLHWLMSVYVVELLRSFFYVTETTFQKNRLFFYRKSVWSKLQSIGIRQHLKRVQLRE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PQDRLTEVIASI I KPQNTYCVRRYAVVQKAAHGHVRKAFKSHVSTLTDLQPYMRQFVAHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHHAVRIRGKSYVQCQGIPQGSILSTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LCSLCYGDMENKLFAGIRRDGLLLRLVDDFLLVTPHLTHAKTFLRTLVRGVPEYGCVVNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LFSVLNYERARRPGLIGASVLGLDDIHRAWRIFVLRVRAQDPPPELYFVKVDVTGAYDTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KLTRHRVTYVPLLGSLRTAQTQLSRKLPGTTLTALEAAANPALPSDFKTILD 1132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ź
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 18
ID US-09-052-919-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1081
                                                         203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1103
                                                                                                   241
                                                                                                                                             263
                                                                                                                                                                                     301
                                                                                                                                                                                                                               323
                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                 383
                                                                                                                                                                                                                                                                                                                                                                                                  443
                                                                                                                                                                                                                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       923
                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601
```

ద

ò

셤 ò 음 ò a ŏ 셤 ò g ò g õ 윱 à g ò 셤 ò g ð 윱 ò 셤 à 셤 à

ò

```
NAME: Apple, Randolph T.
REGISTRATION NUMBER: 36,429
REFERENCE/DGORET NUMBER: 015389-002930US
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Andrews, William H.
TITLE OF INVENTION: NOVEL Telomerase
NUMBER OF SEQUENCES: 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 09-WAY-1997
CLASSIFICATION: 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 18-APR-1997
CLASSIFICATION: 536
LOR ADDITION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY: United States of America ZIP: 94111
COMPOTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
FILIASSIFICATION: 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
                                                                                                                                                                                                                                                                                                Sequence 225, Application US/08854050 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                          Sequence 225, Application US/08854050
                                                                                                                                                                                                                                                                                                             APPLICANT: Cech, Thomas R. APPLICANT: Lingner, Joachim APPLICANT: Nakamura, Toru APPLICANT: Chapman, Karen B. APPLICANT: Morin, Greeg B. APPLICANT: Harley, Calvin Applicant: Andrews
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US 08 FILLING DATE: 01-OCT-1996 CLASSIFICATION: 536
                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              06-MAY-1997
N: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 06 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 01 CLASSIFICATION:
                                                                                                                                                                                                    US-08-854-050-225
                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE:
                                                                                                                                                                                                                            XXXXX
                                    961
                                                                                                                                                                                          RESULT
                                   ద
                                                                                 원
                                                                                                                                셤
                                                                                                                                                                                                                à
                                                                                                         à
                                                                                                                                                      ò
                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                240
                                                                                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCALFVLVAPPSCAYQVCGPPLYQLGA 180
                                                                                                                                                                                                                                                                                                                                                                                                                              VETIFIGSRPWMPGTPRRLPRLPQRYWQMRPLFLELLGNHAQCPYGVLLKTHCPLRAAVT 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LFSVLNYERARRPGLLGASVLGLDDIHRAWRTFVLRVRAQDPPPELYFVKVDVTGAYDTI 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            901 RKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRTLEVQSDYSSYARTSIRASLTF 960
                                                                                                                                                                                        61 DARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAFGFALLDGARGGPPEAFTTSVR 120
                                                                                                                                                      1 MPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLVQRGDPAAFRALVAQCLVCVPW 60
                                                                                                                    Gaps
                                                                                                                                                                                                                                                 ATQARPPHASGPRRIGCERAWNHSVREAGVPLGLPAPGARRRGGSASRSLPLPKRPRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LAKFLHWLMSVYVVELLRSFFYVTETTFQKNRLFFYRKSVWSKLQSIGIRQHLKRVQLRE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PQDRLTEVIASIIKPQNTYCVRRYAVVQKAAHGHVRKAFKSHVSTLTDLQPYMRQFVAHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHHAVRIRGKSYVQCQGIPQGSILSTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSPWQVYGFVRACLRRLVPPGLWGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      L/SEAEVRQHREARPALLTSRLRFIPKPDGLRPIVNMDYVVGARTFRREKRAERLTSRVKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LCSLCYGDMENKLFAGIRRDGLLLRLVDDFLLVTPHLTHAKTFLRTLVRGVPEYGCVVNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RHNERRFLRNTKKFISLGKHAKLSLQELTWKMSVRDCAWLRRSPGVGCVPAAEHRLREEI
                                                                                                                    ö
                                                                                          Length 1132;
                                                                                                                   Indels
                                                                                            Score 8465; DB 14;
Pred. No. 0.00e+00;
                                                                                                                   0; Mismatches
                                                          ILE TYPE: protein
1132 AA; 126995 MW; 6588209 CN;
         SEQUENCE CHARACTERISTICS:
LENGTH: 1132 amino acids
TYPE: amino acid
INFORMATION FOR SEQ ID NO:
                                                                                          Query Match 98.2%;
Best Local Similarity 100.0%;
Matches 1132; Conservative
                                              linear
                                                       MOLECULE TYPE:
                                            TOPOLOGY:
                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                         203
                                                                                                                                                                                                                                                                                                                                                                                                                                                   383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   443
                                                                                                                                                                                                                                                                                                                                                       263
                                                                                                                                                                                                                                                                                                                                                                                                      323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     863
                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             841
```

```
1021 FHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAKGAAGPLPSEAVQWLCHQAFLL 1080
                                                                                                                                                                  1043 FHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAKGAAGPLPSEAVQWLCHQAFLL
NRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCTNIYKILLLQAYRFHACVLQLP
                                                                                                                                                                                                                          SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/854,050 FILING DATE: US-MAY-1997 CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                        Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Townsend and Townsend and Crew
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Two Embarcadero Center, 8th Floor
```

```
US 08/724,643
                                                                                                                                        STANDARD:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US 0
FILING DATE: 25-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                    CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: 14 CLASSIFICATION:
                                                                                                                                 JT 20
US-08-912-951-323
                                                                                                                                                                                                                                                                                                                             94111
                                                                                                                                                      XXXXX
                       923
                                     961
         901
                                                                                                                               셤
                                                                 용
                                                                                            g
                       ŏ
                                                   à
                                                                                ò
                                                                                       ö
                                                                                                                                                                                                                                              240
                                                                                                                                       262
                                                                                                                                                                                                                                                                                   540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LCSLCYGDMENKLFAGIRRDGLLLRLVDDFLLVTPHLTHAKTFLRTLVRGVPEYGCVVNL 900
                                                                                                                                                            SYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCALFVLVAPSCAYQVCGPPLYQLGA 180
                                                                                                                                                                                                                    GAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARPAEEATSLEGALSGTRHSHPSVG 300
                                                                                                                                                                                                                          VETIFIGSRPWMPGTPRRLPRLPQRYWQMRPLFLELLGNHAQCPYGVLLKTHCPLRAAVT 420
                                                                                                                                                                                                                                                                                                       PAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSPWQVYGFVRACLRRLVPPGLWGS 480
                                                                                                                                                                                                                                                                                                                                           900
                                                                                                                                                                                                                                                                                                                                                                                             099
                                                                                                                                                                                                                                                                                                                                                                                                          682
                                                                                                                                                                                                                                                                                                                                                                                                                                       742
                                                                                                  DARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAFGFALLDGARGGPPEAFTTSVR 120
                                                                                                                                                                                                                                                                                                                                                                                                                        LFSVLNYERARRPGLLGASVLGLDDIHRAWRTFVLRVRAQDPPPELYFVKVDVTGAYDTI 720
                                                                                       Gaps
                                                                                                                                                                                                ATQARPPHASGPRRRLGCERAWNHSVREAGVPLGLPAPGARRRGGSASRSLPLPKRPRR
                                                                                                                                                                                                                                                                                                                                                                                                                               PQDRLTEVIASIIKPQNTYCVRRYAVVQKAAHGHVRKAFKSHVSTLTDLQPYMRQFVAHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                          QETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHHAVRIRGKSYVQCQGIPQGSILSTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LAKFLHWLMSVYVVELLRSFFYVTETTFQKNRLFFYRKSVWSKLQSIGIRQHLKRVQLRE
                                                                                                                                                                                                                                                                                                                                                                                           LSEAEVROHREARPALLTSRLRFIPKPDGLRPIVNMDYVVGARTFRREKRAERLTSRVKA
                                                                                                                                                                                                                                                                                                                                   RHNERRFLRNTKKFISLGKHAKLSLQELTWKMSVRDCAWLRRSPGVGCVPAAEHRLREEI
                                                                                      ö
                                                                        Length 1132;
                                                                                      Indels
                                                                       Score 8465; DB 12;
Pred. No. 0.00e+00;
0; Mismatches 0;
                                               MOLECULE TYPE: protein
IENCE 1132 AA; 126995 MW; 6588209 CN;
TELEPHONE: (415) 576-0200 TELEFAX: (415) 576-0300 INFORMATION FOR SEQ ID NO: 225 SEQUENCE CHARACTERISTICS: LENGTH: 1132 amino acids
                                                                      Query Match 98.2%;
Best Local Similarity 100.0%;
Matches 1132; Conservative
                                    TYPE: amino acid
                                          linear
                                          TOPOLOGY:
                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            803
                                                                                                                                             83
                                                                                                                                                                         143
                                                                                                                                                                                                     203
                                                                                                                                                                                                                                 563
                                                                                                                                                                                                                                                             323
                                                                                                                                                                                                                                                                                                                     443
                                                                                                                               61
                                                                                                                                                           121
                                                                                                                                                                                       181
                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                 503
                                                                                                                                                                                                                                                                                                                                                                541
                                                                                                                                                                                                                                                                                                                                                                             563
                                                                                                                                                                                                                                                                                                                                                                                           601
                                                                                                                                                                                                                                                                                                                                                                                                          623
                                                                                                                                                                                                                                                                                                                                                                                                                                     683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         863
                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                       661
                                                                                                                                                                                                                                                                                                                                                                                                                                                   721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
88888888888
                                                                                                   g
                                                                                                                 ò
                                                                                                                              g
                                                                                                                                             à
                                                                                                                                                          g
                                                                                                                                                                          à
                                                                                                                                                                                     셤
                                                                                                                                                                                                    δý
                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                    οy
                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                              å
                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           엄
```

```
DIAGNOSTIC AND
                                                                                                  1020
                                                                                                                            RKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRTLEVQSDYSSYARTSIRASLTF
                                                                                                  NRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCTNIYKILLLQAYRFHACVLQLP
                                                                                                                                                                                                 1021 FHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAKGAAGPLPSEAVQWLCHQAFLL
                                                                                                                                                                                                                                                                                              1081 KLTRHRVTYVPLLGSLRTAQTQLSRKLPGTTLTALEAAANPALPSDFKTILD 1132
                                                                                                                                                                                                                                                                                                                           1103 KITRHRVTYVPLIGSLRTAQTQLSRKLPGTTLTALEAANPALPSDFKTILD 1154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Cech, Thomas R.
APPLICANT: Linguer, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Nakamura, Toru
APPLICANT: Chapman, Karen B.
APPLICANT: Harley, Calvin
APPLICANT: Harley, Calvin
APPLICANT: Harley, Calvin
TILLE OF INVENTION: HUMAN TELOMERASE CAFALYTIC SUBUNIT:
TITLE OF INVENTION: THERAPEUTIC METHODS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER TEACHBLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: TBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/912,951
FILING DATE: 14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ž
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE OF INVENTATION
NUMBER OF SEQUENCES: 335
CORRESPONDENCE ADDRESS:
NUMBERSSEE: Townsend and Townsend and Crew
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               United States of America
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     08/846,017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STREET: Two Embarcadero Center,
CITY: San Francisco
STATE: California
COUNTRY: United States of Americ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 323, Application US/08912951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 323, Application US/08912951
```

```
T 21
US-08-974-549-611
                                                                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                                                                                                                                                                                                                                                                                                                                             STATE:
                                                                                                                                                                                                            XXXXX
                      803
                                                 863
                                                                             923
                                                                                            961
                                    841
                                                               901
                                                                                                                        1021
        781
                                                                                                                                                                                       RESULT
        셤
                      à
                                  g
                                                 ò
                                                              g
                                                                             ð
                                                                                         g
                                                                                                          ö
                                                                                                                      g
                                                                                                                                    ö
                                                                                                                                                  셤
                                                                                                                                                                 à
                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                               DARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAFGFALLDGARGGPPEAFTTSVR 120
                                                                                                                                                                                             180
                                                                                                                                                                                                                                202
                                                                                                                                                                                                                                             240
                                                                                                                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                       322
                                                                                                                                                                                                                                                                                                    RQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKEQLRPSFLLSSLRPSLTGARRL 360
                                                                                                                                                                                                                                                                                                                   382
                                                                                                                                                                                                                                                                                                                                                             480
                                                                                                                                                                                                                                                                                                                                                                                         540
                                                                                                                                                                                                                                                                                                                                                                                                       562
                                                                                                                                                                                                                                                                                                                                                                                                                   9
                                                                                                                                                                                                                                                                                                                                                                                                                                  622
                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                              682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                       82
                                                                                                                                             Gaps
                                                                                                                                                         1 MPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLVQRGDPAAFRALVAQCLVCVPW
                                                                                                                                                                 13 MPRAPRCRAVRSLIRSHYREVLPLATFVRRLGPQGWRLVQRGDPAAFRALVAQCLVCVPW
                                                                                                                                                                                                                 SYLPNTVIDALRGSGAWGLLLRRVGDDVLVHLLARCALFVLVAPSCAYQVCGPPLYQLGA
                                                                                                                                                                                                                         ATQARPPPHASGPRRRLGCERAWNHSVREAGVPLGLPAPGARRRGGSASRSLPLPKRPRR
                                                                                                                                                                                                                                                   GAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARPAEEATSLEGALSGTRHSHPSVG
                                                                                                                                                                                                                                                                               PAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSPWQVYGFVRACLRRLVPPGLWGS
                                                                                                                                                                                                                                                                                                                                                                   LAKFLHWLMSVYVVELLRSFFYVTETTFQKNRLFFYRKSVWSKLQSIGIRQHLKRVQLRE
                                                                                                                                                                                                                                                                                                                                                                                                                          LSEAEVRQHREARPALLTSRLRFIPKPDGLRPIVNMDYVVGARTFRREKRAERLTSRVKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                       LFSVLNYERARRPGLLGASVLGLDDIHRAWRTFVLRVRAQDPPPELYFVKVDVTGAYDTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PODRLTEVIASIIKPONTYCVRRYAVVOKAAHGHVRKAFKSHVSTLTDLQPYMRQFVAHL
                                                                                                                                                                                                                                                                                                                                                                                        RHNERRFLRNTKKFISLGKHAKLSLQELTWKMSVRDCAWLRRSPGVGCVPAAEHRLREEI
                                                                                                                                            ö
                                                                                                                             Length 1154;
                                                                                                                                           Indels
           ATTORNEY AGENT INFO TO THE TO THE TO THE TOTAL TO THE TELECOMUNICATION INFORMATION:

TELEPHONE: (415) 576-0200

INFORMATION FOR SEQ ID NO: 323:
SEQUENCE CHARACTERISTICS:
                                                                                                                                            ö
                                                                                                                             Score 8465; DB 13;
Pred. No. 0.00e+00;
                                                                                                                                           0; Mismatches
                                                                                                        MOLECULE TYPE: protein
FENCE 1154 AA; 129603 MW; 6816882 CN;
                                                                           LENGTH: 1154 amino acids
01-OCT-1996
                                                                                                                           Watch 98.2%;
Local Similarity 100.0%;
                                                                                                                                          Matches 1132; Conservative
                                                                                   amino acid
                                                                                                  linear
FILING DATE: 01 CLASSIFICATION:
                                                                                          STRANDEDNESS:
                                                                                                  TOPOLOGY:
                                                                                                                SEQUENCE
                                                                                                                              Query Match
                                                                                                                                                                                                                                                          203
                                                                                                                                                                                                                                                                                     263
                                                                                                                                                                                     61
                                                                                                                                                                                                   83
                                                                                                                                                                                                                 121
                                                                                                                                                                                                                              143
                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                 323
                                                                                                                                                                                                                                                                                                                                                                         443
                                                                                                                                                                                                                                                                                                                                                                                                     503
                                                                                                                                                                                                                                                                                                                                                                                                                   541
                                                                                                                                                                                                                                                                                                                                                                                                                                 563
                                                                                                                                                                                                                                                                                                                                                                                                                                                             623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    743
                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       721
                                                                                                                                                                                                                                                                                                                                                                                                                 g
888888888888888888888
                                                                                                                                                         움
                                                                                                                                                                       ð
                                                                                                                                                                                    셤
                                                                                                                                                                                                  ò
                                                                                                                                                                                                               g
                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                         요
                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
```

```
1020
                  LCSLCYGDMENKLFAGIRRDGLLLRLVDDFLLVTPHLTHAKTFLRTLVRGVPEYGCVVNL
                                                                                                        RKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRTLEVQSDYSSYARTSIRASLTF
                                                                                                                                                                                                                                                               NRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCTNIYKILLLLQAYRFHACVLQLP
                                                                                                                                                                                                                                                                                      FHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAKGAAGPLPSEAVQWLCHQAFLL
                                                                                                                                                                                                                                                                                                                                                                            1043 FHQQVWKNPTFFLKVISDTASLCYSILKAKNAGMSLGAKGAAGPLPSEAVQWLCHQAFLL
QETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHHAVRIRGKSYVQCQGIPQGSILSTL
                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Morin, Gregg B.
APPLICANT: Harley, Calvin B.
APPLICANT: Harley, William H.
ITILE OF INVENTION: Human Telomerase Catalytic Subunit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/974,549
FILING DATE: 19-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Townsend and Crew LLP Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION: 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996
PRIOR APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
APPLICATION NUMBER: US 08/846,017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 25-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/RE1 017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 611, Application US/08974549
GENERAL INFORMATION:
APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Chapman, Karen B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 611, Application US/08974549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE: Townsend and
STREET: Two Embarcadero
CITY: San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQUENCES: 726 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ZIP: 94111-3834
```

```
PAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSPWQVYGFVRACLRRLVPPGLWGS 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQUENCES: 1
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 45, Applicati
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-911-312-45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          XXXXXX
                     443
                                                              503
                                                                                                                                                                                     683
                                                                                                                                                                                                          721
                                                                                                                                                                                                                                                                                          841
                                                                                                                                                                                                                                                                                                                                                                         196
                                                                                                                                                                                                                                                                                                                                                                                                                1021
  421
                                         481
                                                                                                                                                                  661
                                                                                                                                                                                                                                                 781
                                                                                                                                                                                                                                                                                                             863
                                                                                                                                                                                                                                                                                                                                   901
                                                                                                                                                                                                                                                                                                                                                      923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
                     ò
                                        엄
                                                             å
                                                                                g
                                                                                                     ğ
                                                                                                                        셤
                                                                                                                                             Q
                                                                                                                                                                g
                                                                                                                                                                                     δ
                                                                                                                                                                                                       g
                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           263 GAAPEPERTPVGQGSWAHPGRIRGPSDRGFCVVSPARPAEEAISLEGALSGIRHSHPSVG 322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             23 MPRAFRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLVQRGDPAAFRALVAQCLVCVPW 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLVQRGDPAAFRALVAQCLVCVPW 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    203 ATQARPPHASGPRRLGCERAWNHSVREAGVPLGLPAPGARRRGGSASRSLPLPKRPRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note= "fusion protein composed of hTRT protein sequence, vector sequences, the Myc epitope and His6 tag" | WW; 6816882 CN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181 ATQARPPPHASGPRRRLGCERAWNHSVREAGVPLGLPAPGARRRGGSASRSLPLPKRPRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241 GAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARPAEEATSLEGALSGTRHSHPSVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKEQLRPSFLLSSLRPSLTGARRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361 VETIFLGSRPWMPGTPRRLPRLPQRYWQMRPLFLELLGNHAQCPYGVLLKTHCPLRAAVT
                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                         Score 8465; DB 18; Length 1154;
Pred. No. 0.00e+00;
0; Mismatches 0; Indels 0;
                                                                                                                                                                                                       NAME: Apple, Randolph Ted
REGISTRATION NUMBER: 36,429
REFERENCE/DOCKET NUMBER: 015389-002610US
                                                                                                                                          APPLICATION NUMBER: WO PCT/US97/17618
FILING DATE: 01-OCT-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: WO PCT/US97/17885
FILLING DATE: 01-OCT-1997
ATTORNEY/AGENT INFORMATION:
FILING DATE: 06-MAY-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
                                                 APPLICATION NUMBER: US 08/911,312
FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/912,951
                                                                                                            APPLICATION NUMBER: US 08/915,503
FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                  TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
TELEPHONE: (415) 576-0300
INFORMATION FOR SEQ ID NO: 611:
SEQUENCE CHARACTERISTICS:
                                                                                       FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                        1154 amino acids
                             09-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 98.2%;
Best Local Similarity 100.0%;
Matches 1132; Conservative
                                                                                                                                                                                                                                                                                                                       TOPOLOGY: linear
MOLECULE TYPE: protein
                                        PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                          OTHER INFORMATION: M
4CE 1154 AA; 129603
                                                                                                                                                                                                                                                                                                                                                            LOCATION: 1.1154
OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: Protein
                                                                                                                                                                                                                                                                                                   amino acid
                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
                             FILING DATE:
                                                                                                                                                                                                                                                                                      LENGIH:
                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
```

```
1020
                                                                                                                                                                                                                                                                                                                                       780
                                                                                                                                                                                                                                                                                                                                                                         802
                                                                                                                                                                                                                                                                                                                                                                                                            840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LCSLCYGDMENKLFAGIRRDGLLLRLVDDFLLVTPHLTHAKTFLRTLVRGVPEYGCVVNL 900
                                                                                                                     NRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCTNIYKILLLLQAYRFHACVLQLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAKGAAGPLPSEAVQWLCHQAFLL
                                                RHNERRFLRNTKKFISLGKHAKLSLQELTWKMSVRDCAWLRRSPGVGCVPAAEHRLREEI
                                                                   PQDRLTEVIASIIKPQNTYCVRRYAVVQKAAHGHVRKAFKSHVSTLTDLQPYMRQFVAHL
                                                                                                                                                                                                                                                                                                                                                                                                            QETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHHAVRIRGKSYVQCQGIPQGSILSTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRTLEVQSDYSSYARTSIRASLTF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1043 FHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAKGAAGPLPSEAVQWLCHQAFLL
                                                                                                                                                                                                                                                                LFSVLNYERARRPGLLGASVLGLDDIHRAWRTFVLRVRAQDPPPELYFVKVDVTGAYDTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Cech, Thomas R.
APPLICANT: Cech, Thomas R.
APPLICANT: Linguer, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Natamura, Toru
APPLICANT: Morin, Gregg B.
APPLICANT: Harley, Calvin B.
APPLICANT: Andrews, William
TITLE OF INVENTION: Telomerase Reverse Transcriptase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE: Townsend and Townsend and Crew LLI
STREET: Two Enbarcadero Center, Bighth Floor
CITY: San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Application US/08911312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 45, Application US/08911312
```

```
1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     983 NRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCTNIYKILLLQAYRFHACVLQLP 1042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1080
                                                                                                                                                                                                                                                                                                                                        720
                                                                                                                                                                                                                                                                                                                                                                    742
                                                                                                                                                                                                                                                                                                                                                                                              780
                                                                                                                                                                                                                                                                                                                                                                                                                                                      840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             982
                                                       420
                                                                                                             480
                                                                                                                                                                   540
                                                                                                                                                                                               562
                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                      622
                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                            682
                                                                                                                                                                                                                                                                                                                                                                                                                           802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       922
                                                                                 442
                                                                                                                                       502
                                                                                                                                                                                                                                                                                               1043 FHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAKGAAGPLPSEAVQWLCHQAFLL
RQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKEQLRPSFLLSSLRPSLTGARRL
              PAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSPWQVYGFVRACLRRLVPPGLWGS
                                                                                                                                                                                  LAKFLHWLMSVYVVELLRSFFYVTETTFQKNRLFFYRKSVWSKLQSIGIRQHLKRVQLRE
                                                                                                                                                                                                                                                                                 LSEAEVROHREARPALLTSRLRFIPKPDGLRPIVNMDYVVGARTFRREKRAERLTSRVKA
                                                                                                                                                                                                                                                                                                                                       LFSVLNYERARRPGLLGASVLGLDDIHRAWRTFVLRVRAQDPPPELYFVKVDVTGAYDTI
                                                                                                                                                                                                                                                                                                                                                                                              PQDRLTEVIASIIKPQNTYCVRRYAVVQKAAHGHVRKAFKSHVSTLTDLQPYMRQFVAHL
                                                                                                                                                                                                                                                                                                                                                                                                             QETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHHAVRIRGKSYVQCQGIPQGSILSTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LCSLCYGDMENKLFAGIRRDGLLRLVDDFLLVTPHLTHAKTFLRTLVRGVPEYGCVVNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRTLEVQSDYSSYARTSIRASLTF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            923 RKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRTLEVQSDYSSYARTSIRASLTF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCTNIYKILLLQAYRFHACVLQLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1021 FHQOVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAKGAAGPLPSEAVQWLCHQAFLL
                                                      VET I FLGSRPWMPGT PRRLPRLPQRYWQMRPLFLELLGNHAQCPYGVLLKTHCPLRAAVT
                                                                                                                                                                   RHNERRFLRNTKKFISLGKHAKLSLQELTWKMSVRDCAWLRRSPGVGCVPAAEHRLREEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Counter, Christopher M.
APPLICANT: Meyerson, Matthew
APPLICANT: Weinberg, Robert A.
ATTLE OF INVENTION: Telomerase Catalytic Subunit Gene and
NUMBER OF SEQUENCES: 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1103 KLTRHRVTYVPLLGSLRTAQTQLSRKLPGTTLTALEAAANPALPSDFKTILD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1081 KLTRHRVTYVPLLGSLRTAQTQLSRKLPGTTLTALEAAANPALPSDFKTILD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ŕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 3, Application US/09026981 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 3, Application US/09026981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JT 23
US-09-026-981-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       XXXXXX
                           323
                                                                                                                                                                                             503
                                                                                                                                                                                                                                                                                                                                                                                             721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         196
                                                                                                            421
                                                                                                                                                                  481
                                                                                                                                                                                                                         541
                                                                                                                                                                                                                                                     263
                                                                                                                                                                                                                                                                               601
                                                                                                                                                                                                                                                                                                            623
                                                                                                                                                                                                                                                                                                                                       661
                                                                                                                                                                                                                                                                                                                                                                  683
                                                                                                                                                                                                                                                                                                                                                                                                                                                    781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  901
301
                                                      361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
ID US
                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                           원
                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      용
                                                                                ò
                                                                                                          용
                                                                                                                                       à
                                                                                                                                                                셤
                                                                                                                                                                                             à
                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCALFVLVAPSCAYQVCGPPLYQLGA 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLVQRGDPAAFRALVAQCLVCVPW 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARPAEEATSLEGALSGTRHSHPSVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 1154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 8465; DB 13;
Pred. No. 0.00e+00;
0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            015389-002500US
                                                                                                                                                                                                                                  FILING DATE: 18-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/912,951
FILING DATE: 14-AUG-1997
PRIOR APPLICATION NUMBER: US 08/915,503
FILING DATE: 14-AUG-1997
APPLICATION NUMBER: US 08/915,503
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE: protein
SEQUENCE 1154 AA; 129603 MW; 6816882 CN;
                                                                                                                                                             PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
                                                                                                    CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/911,312
FILING DATE: 14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME: Einhorn, Gregory P.
REGISTATION NUMBER: 38,440
REFERENCE/DOCKET NUMBER: 01536
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEO ID NO: 45:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1154 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match

Best Local Similarity 100.0%;
Matches 1132; Conservative
California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                          94111-3834
                                                                                                                                                    CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        263
```

a

a

92 93

å

셤

9 9 9 9

```
1042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCTNIYKILLLQAYRFHACVLQLP 1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1021 FHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAKGAAGPLPSEAVQWLCHQAFLL 1080
                                                                                 480
                                                                                                                                       540
                                                                                                                                                                                             900
                                                                                                                                                                                                                                                    99
                                                                                                                                                                                                                                                                                                       323 RQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKEQLRPSFLLSSLRPSLTGARRL 382
                                                                                                                                                                                                                       622
                                                                                                                                                                                                                                                                            682
                                                                                                                                                                                                                                                                                                                                                               780
                                                                                                                                                                                                                                                                                                                                                                                        803
                                                                                                                                                                                                                                                                                                                                                                                                                                900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361 VETIFIGSRPWMPGTPRRLPRLPQRYWQMRPLFLELLGNHAQCPYGVLLKTHCPLRAAVT
                                                                                 421 PAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSPWQVYGFVRACLRRLVPPGLWGS
                                                                                                                                       RHNERRFLRNTKKFISLGKHAKLSLQELTWKMSVRGCAWLRRSPGVGCVPAAEHRLREEI
                                                                                                                                                                                                                                                                                                                                                             PQDRLTEVIASIIKPQNTYCVRRYAVVQKAAHGHVRKAFKSHVSTLTDLQPYMRQFVAHL
                                                                                                                                                                                                                                                                                                                                                                                                                  QETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHHAVRIRGKSYVQCQGIPQGSILSTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        841 LCSLCYGDMENKLFAGIRRDGLLLRLVDDFLLVTPHLTHAKTFLRTLVRGVPEYGCVVNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1043 FHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAKGAAGPLPSEAVQWLCHQAFLL
                                                                                                                                                     RKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRTLEVQSDYSSYARTSIRASLTF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ź
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 344, Application US/08974549 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 344, Application US/08974549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cech, Thomas R.
Lingner, Joachim
Nakamura, Toru
Chapman, Karen B.
Morin, Gregg B.
Harley, Calvin B.
Andrews, William H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 T 24
US-08-974-549-344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  961
                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                               721
                                                                                                                                                                                                                                                                                                                                                                                                                   781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                     유
                                                                                                                                                                                                                                                                                                                                                                                                                  엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                             g
                                                         ö
                                                                              g
                                                                                                            ò
                                                                                                                                      셤
                                                                                                                                                                  ò
                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCALFVLVAPSCAYQVCGPPLYQLGA 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATQARPPPHASGPRRRLGCERAWNHSVREAGVPLGLPAPGARRRGGSASRSLPLPKRPRR 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDKEQLRPSFLLSSLRPSLTGARRL 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAFGFALLDGARGGPPEAFTTSVR 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MPRAPRCRAVRSILRSHYREVLPLATFVRRLGPQGWRLVQRGDPAAFRALVAQCLVCVPW 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARPAEEATSLEGALSGTRHSHPSVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 8459; DB 14; Length 1132;
Pred. No. 0.00e+00;
0; Mismatches 1; Indels 0;
CORRESPONDENCE ADDRESS:
ADDRESSEE: Hamilton, Brook, Smith & Reynolds, P.C.
                                                                                       COMPUTER REDABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE/DOCKET NUMBER: WH197-11p4AM TELECOMMUNICATION INFORMATION: TELEPHONE: 781-861-6240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE: protein
ENCE 1132 AA; 126937 MW; 6590273 CN;
                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/055,762
FILING DATE: 14-AUG-1997
                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US 60/054,549
FILING DATE: 01-AUG-1997
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/064,322
FILING DATE: 30-OCT-1997
                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US 60/047,151
FILING DATE: 20-MAY-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/038,750
FILING DATE: 20-FEB-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                              CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/026,981
FILING DATE: 20-FEB-1998
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                          32,227
                            STREET: Two Militia Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INFORMATION FOR SEQ ID NO: 3: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME: Granahan, Patricia
REGISTRATION NUMBER: 32,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH: 1132 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             781-861-9540
                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 98.1%;
Best Local Similarity 99.9%;
Matches 1131; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                         Lexington
                                                                    USA
                                       CITY: Lexir
STATE: MA
COUNTRY: US
                                                                               02173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
```

品

a

9

g

å

ö

g

8 8

ò

, į

```
1102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          300
                                                                                                                                                                                                                   360
                                                                                                                                                                                                                                                                                                                                    480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            982
                       121 SYLPNIVIDALRGSGAWGLLLRRVGDDVLVHLLARCALFVLVAPSCAYQVCGPPLYQLGA 180
                                                                                                                         262
                                                                                                                                                                                     322
                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                                                        442
                                                                                                                                                                                                                                                                                                                                                                    502
                                                                                                                                                                                                                                                                                                                                                                                                  540
                                                                                                                                                                                                                                                                                                                                                                                                                                562
                                                                                                                                                                                                                                                                                                                                                                                                                                                             900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      862
    DARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAFGFALLDGARGGPPEAFTTSVR 142
                                                                                                                                                                                                                1043 FHQQVWRNPTFFLRVISDTASLCYSILKAKNAGMSLGAKGAAGPLPSEAVQWICHQHIIII
                                               181 ATQARPPHASGPRRIGCERAWNHSVREAGVPLGLPAPGARRRGGSASRSLPLPKRPRR
                                                                                                         GAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARPAEEATSLEGALSGTRHSHPSVG
                                                                                                                                                                     601 LSEAEVROHREARPALLTSRLRFIPKPDGLRPIVNMDYVVGARTFRREKRAERLTSRVKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PQDRLTEVIASIIKPQNTYCVRRYAVVQKAAHGHVRKAFKSHVSTLTDLQPYMRQFVAHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RKTVVNFPVEDEALGGTAFVQMPAHGLFPWCGLLLDTRTLEVQSDYSSYARTSIRASVTF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NRGFKAGRNMRRKLFGVLRLKCHSLFLDLQVNSLQTVCTNIYKILLLQAYRFHACVLQLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1021 FHQQVWKNPTFFLRVISDTASLCYSILKAKNAGMSLGAKGAAGPLPSEAVQWLCHQAFLL
                                                                                                                                                                                                                                                                                                                                      PAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSPWQVYGFVRACLRRLVPPGLWGS
                                                                                                                                                                                                                                                                                                                                                                                                  RHNERRFLRNTKKFISLGKHAKLSLQELTWKMSVRDCAWLRRSPGVGCVPAAEHRLREEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                             541 LAKFLHWLMSVYVVELLRSFFYVTETTFQKNRLFFYRPSVWSKLQSIGIRQHLKRVQLRE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LFSVLNYERARRPGLLGASVLGLDDIHRAWRTFVLRVRAQDPPPELYFVKVDVTGAYDTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHHAVRIRGKSYVQCQGIPQGSILSTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361 VETIFLGSRPWMPGTPRRLPRLPQRYWQMRPLFLELLGNHAQCPYGVLLKTHCPLRAAVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1081 KLTRHRVTYVPLLGSLRTAQTQLSRKLPGTTLTALEAAANPALPSDFKTILD 1132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-951-733-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       983
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1103
   83
                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                  481
                                                                                                                                                                                                                                                                                                                                                                                                                                503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         961
                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         용
                                                                                        셤
                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                             g
                                                             ò
                                                                                                                         ö
                                                                                                                                                     용
                                                                                                                                                                                   ò
                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAFGFALLDGARGGPPEAFTTSVR 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLVQRGDPAAFRALVAQCLVCVPW 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 8448; DB 18; Length 1132;
Pred. No. 0.00e+00;
1; Mismatches 1; Indels 0;
IIILE OF INVENTION: Human Telomerase Catalytic Subunit NUMBER OF SEQUENCES: 726
                                                                                                                                                                COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                            CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Crew LLP STREET: Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME: Apple, Randolph Ted
REGISTRATION NUMBER: 36,429
REFERENCE/DOCKET NUMBER: 015389-002610US
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US 08/915,503
FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: WO PCT/US97/17618
FILING DATE: 01-OCT-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: WO PCT/US97/17885
FILING DATE: 01-OCT-1997
ATTORNEY/AGENT INFORMATION:
NAME: Apple, Randolph Ted
                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR AND DATE:

APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAX-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAX-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/911,312
FILING DATE: 14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MOLECULE TYPE: protein
ENCE 1132 AA; 126950 MW; 6598565 CN;
                                                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US 08/912,951
FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                           APPLICATION NUMBER: US/08/974,549
FILING DATE: 19-NOV-1997
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                               FILING DATE: 18-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEPHONE: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 344:
SEQUENCE CHARACTERISTICS:
LENGTH: 1132 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 14-AUG-:
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 / Match 18.0%;
Local Similarity 99.8%;
nes 1130; Conservative
                                                                          San Francisco
                                                                                         California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                    ZIP: 94111-3834
                                                                                                        USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY:
                                                                          CITY: Sar
STATE: Ca
COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
```

8 6 8

```
241 PGARRRGGSASRSLPLPKRPRRGAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARP 300
                                                                                                               421
                                                                                                                                                                                                         541
                                                               셤
                                                                                                              ద
                                                                                                                                                        원
                                                                                                                                                                                 δ
                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                           음
                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                             ò
                                                                                        ò
                                                                                                                                    ò
                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FVLVAPSCAYQVCGPPLYQLGAATQARPPPHASGPRRRLGCERAWNHSVREAGVPLGLPA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VQRGDPAAFRALVAQCLVCVPWDARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLA 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121 FGFALLDGARGGPPEAFTTSVRSYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCAL 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PGARRRGGSASRSLPLPKRPRRGAAPEPERTPVGQGSWAHPGRTRGPSDRGFCVVSPARP 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 HASGORCVLLRTWEALAPATPAMPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRL 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 HASGQRCVLLRTWEALAPATPAMPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRL 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                  APPLICANT: Harrington, Lea A.
APPLICANT: Robinson, Murray O.
TITLE OF INVENTION: NOVEL GENES ENCODING TELOMERASE PROTEINS
WUMBER OF SEQUENCES: 44
CORRESPONDENCE ADDRESS:
ADDRESSEE: Amgen Inc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 949;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                      SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/951,733 FILING DATE:
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 7113; DB 13;
Pred. No. 0.00e+00;
0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/873,039
FILING DATE: 11-010-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/751,189
FILING DATE: 15-NOV-1996
ATTORNEY/AGENT INFORMATION:
NAME: Oleski, Nancy A.
REGISTRATION NUMBER: 34,688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOPOLOGY: unknown
MOLECULE TYPE: protein
ENCE 949 AA; 106370 MW; 4628597 CN;
                                                                                                                                                                                                     COUNTRY: USA
ZIP: 91320-1789
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/NS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE/DOCKET NUMBER: A-433B TELECOMMUNICATION INFORMATION:
                                                                                                                                                     ADDRESSEE: Amgen Inc.
STREET: One Amgen Center Drive
CITY: Thousand Oaks
                                                                            Sequence 14, Application US/08951733 GENERAL INFORMATION:
                                                      Sequence 14, Application US/08951733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: (805) 499-8011
INFORMATION FOR SEQ ID NO: 14:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEPHONE: (805) 447-6504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH: 949 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Match 82.5%;
Local Similarity 100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           949; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRANDEDNESS:
                                                                                                                                                                                           STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
           XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
```

```
420
                                                                  420
                                                                                        480
                                                                                                               480
                                                                                                                                                                                    9
                                                                                                                                                                                                         600
                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                              720
                                                                                                                                                                                                                                                                                       900
            EQLRPSFLLSSLRPSLTGARRLVETIFLGSRPWMPGTPRRLPRLPQRYWQMRPLFLELLG
                                                                                          NHAQCPYGVLLKTHCPLRAAVTPAAGVCAREKPQGSVAAPEEEDTDPRRLVQLLRQHSSP
                                                                                                   WLRRSPGVGCVPAAEHRLREEILAKFLHWLMSVYVVELLRSFFYVTETTFQKNRLFFYRK
                                                                                                                                                                                              661 VVGARTFRREKRAERLTSRVKALFSVLNYERARRPGLLGASVLGLDDIHRAWRTFVLRVR
                                                                                                                                                                                                                                                                                                                         AQDPPPELYFVKVDVIGAYDTIPQDRLIEVIASIIKPQNTYCVRRYAVVQKAAHGHVRKA
AEEATSLEGALSGTRHSHPSVGRQHHAGPPSTSRPPRPWDTPCPPVYAETKHFLYSSGDK
                                                                                                                                                                                                                                                                                                                                                                     781 FKSHVSTLTDLQPYMRQFVAHLQETSPLRDAVVIEQSSSLNEASSGLFDVFLRFMCHHAV
                                                                                                                                                                                                                                                                                                                                                                                                                    RIRGKSYVQCQGIPQGSILSTLLCSLCYGDMENKLFAGIRRDGLLLRLVDDFLLVTPHLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HAKTFLRTLVRGVPEYGCVVNLRKTVVNFPVEDEALGGTAFVQMPAHGL 949
                                                                                                                                                                                                                                                                                                                         721
301
                                           361
                                                                  361
                                                                                                              421
                                                                                                                                      481
                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                721
                                                                                                                                                                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                                                                                                                                                                                                               901
```

Search completed: Mon Dec 28 07:53:25 1998 Job time : 63 secs.

25 125 1.4 402 1 1 1 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1	SULT XXXX XXXX Sequence Sequence Sequen	APPLICANT: KUBERASAME APPLICANT: RUGGER, DA APPLICANT: PANG, ROY TITLE OF INVENTION: C NUMBER OF SEQUENCES: CORRESPONDENCE ADDRESS ADDRESSEE: TESTA, E STREET: 53 STATE SI CITY: BOSTON STATE: MASSACHUSETI	CC COMPUTAY: U.S.A. CC ZIP: D2109 CC COMPUTER READABLE FORM: CC COMPUTER: ELOPPY COMPUTER: IBM PC COMPUTER:
######################################	Title: >US-08-951-733-20 Description: (1-1154) from USO8951733.pep Perfect Score: 8624 Sequence: 8624 Scoring table: PAM 150 Gap 11 Searched: 77309 seqs, 7078906 residues Post-processing: Minimum Match 0% Listing first 45 summaries Database: a-issued 1:5_COMB 2:PCT9_COMB 3:backfiles1 Statistics: Mean 37.265; Variance 182.038; scale 0.205	Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being print and is derived by analysis of the total score distribution.  SUMMARIES  Query  Score Match Length DB ID Description Pred.	118 1.4 399 1 US-08-147 Sequence 27, Applicati 2.06e+00 3 118 1.4 399 2 PCT-US92-0 Sequence 23, Applicati 2.06e+00 5 118 1.4 399 1 US-08-247 Sequence 23, Applicati 2.06e+00 6 118 1.4 399 1 US-08-643 Sequence 23, Applicati 2.06e+00 7 118 1.4 399 1 US-08-643 Sequence 23, Applicati 2.06e+00 9 118 1.4 399 1 US-08-643 Sequence 23, Applicati 2.06e+00 9 118 1.4 399 1 US-08-479 Sequence 23, Applicati 2.06e+00 10 118 1.4 399 2 PCT-US93-0 Sequence 23, Applicati 2.06e+00 11 118 1.4 399 2 PCT-US93-1 Sequence 23, Applicati 2.06e+00 12 118 1.4 399 2 PCT-US93-0 Sequence 23, Applicati 2.06e+00 13 118 1.4 399 2 PCT-US93-0 Sequence 23, Applicati 2.06e+00 14 118 1.4 399 2 PCT-US93-0 Sequence 23, Applicati 2.06e+00 15 118 1.4 399 2 PCT-US93-0 Sequence 23, Applicati 2.06e+00 16 118 1.4 399 2 PCT-US93-0 Sequence 23, Applicati 2.06e+00 17 118 1.4 399 1 US-08-45- Sequence 23, Applicati 2.06e+00 18 118 1.4 399 1 US-08-45- Sequence 23, Applicati 2.06e+00 19 118 1.4 399 2 PCT-US93-0 Sequence 23, Applicati 2.06e+00 20 118 1.4 399 1 US-08-451- Sequence 23, Applicati 2.06e+00 21 118 1.4 399 1 US-08-451- Sequence 23, Applicati 2.06e+00 22 118 1.4 399 1 US-08-451- Sequence 23, Applicati 2.06e+00 23 125 1.4 402 1 US-07-841- Sequence 29, Applicati 2.06e+00

```
CITY: BOSTON
STATE: MASSACHUSETTS
CONTRY: U.S.A.
ZIP: OLIO9
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: OLIOPE: OLIOPE: IBM PC compatible
COMPUTER: OLIOPE: OLIOPE: IBM PC compatible
COMPUTER: OLIOPE: OLIOPE: OLIOPE: OLIOPE: IBM PC compatible
COMPUTER: OLIOPE: OLI
       APPLICANT: OPPERMANN, HERMANN
APPLICANT: OZKAYNAK, ENGIN
APPLICANT: KUBERASAMPATH, THANGAVEL
APPLICANT: RUBERASAMPATH, THANGAVEL
APPLICANT: PANG, ROY H.L.
TITLE OF INVENTION: OSTEOGENIC DEVICES
NUMBER OF SEQUENCES: 33
CORRESPONDENCE ADDRESS:
CORRESPONDENCE ADDRESS:
STREET: 53 STATE STREET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CRP-001CP6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR AFPLICATION UNDER:
FILING DATE:
PLING APPLICATION UNDER:
PRIOR APPLICATION DATA:
APPLICATION UNDER:
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
PRIOR APPLICATION DATA:
PRIOR APPLICATION DATA:
PRIOR APPLICATION NUMBER:
PRIOR APPLICATION NUMBER:
PRIOR APPLICATION NUMBER:
PRIOR APPLICATION NUMBER:
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
APPLICATION NUMB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: US 179,460 FILING DATE: 08-APR-1988 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   27,829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME: PITCHER, EDMUND R. RECISTRATION NUMBER: 27,825 REFERENCE/DOCKET NUMBER: TELECOMMUNICATION INFORMATION
               12 GLALCALGGGHGPRPP-HTC-PORRLG-ARERRDMOREILAVLGLPGR-PRPRAQPAAAR 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 399;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             / Match 1.4%; Score 118; DB 1; Length 399
Local Similarity 38.7%; Pred. No. 2.06e+00;
hes 24; Conservative 12; Mismatches 22; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      399 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CRP-001CP6
PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 621,849
FILING DATE: 04-DEC-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 616,374
FILING DATE: 21-NOV-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 600,024
FILING DATE: 18-OCT-1990
PRIOR APPLICATION NUMBER: US 599,543
FILING DATE: 18-OCT-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 599,543
FILING DATE: 18-OCT-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 579,865
FILING DATE: O7-SEP-1990
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PALOR AFFLICATION UNBER: US 569,920
FILING DATE: 20-AUG-1990
PRIOR APPLICATION DATA:
APPLICATION NUBER: US 483,913
FILING DATE: 22-FEB-1990
PRIOR APPLICATION DATA:
PILING DATE: 17-OCT-1989
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 315,342
FILING DATE: 17-OCT-1989
PRIOR APPLICATION NUMBER: US 315,342
FILING DATE: 15-AUG-1988
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 232,630
FILING DATE: 15-AUG-1988
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 232,630
FILING DATE: 18-AUG-1988
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 212,630
FILING DATE: 08-APR-1988
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY: linear
MOLECULE TYPE: protein
JENCE 399 AA: 44764 MW; 790568 CN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 27, Application US/08447570 Patent No. 5714589 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TATORICH TO CONTROL OF THE CASE OF THE CAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 27, Application US/08447570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   T 2
US-08-447-570-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   254 LP 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              68 QP 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
```

셤

g

δ

CGCKEKEKEKCGC

```
ò
                                                                                                                                                      a
                                                                                                                                                                              δ
                                                                                                                                                        4
                                                                                                                                                                            Score 118; DB 1; Length 399;
Pred. No. 2.06e+00;
12; Mismatches 22; Indels 4; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER FELDABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US92/01968
FILING DATE: 19920311
CLASSIFICATION 1435
PRIOR APPLICATION NUMBER: US 667,274
FILING DATE: 11-MAR-1991
PRIOR APPLICATION NUMBER: US 667,274
FILING DATE: 11-MAR-1991
PRIOR APPLICATION NUMBER: US 67,274
FILING DATE: 30-AUG-1991
ATPONENT/AGENTI INFORMATION:
APPLICATION NUMBER: US 752,764
FILING DATE: 30-AUG-1991
ATTONENT/AGENTI INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 23, Application PC/TUS9201968
GENERAL INFORMATION:
APPLICANT: COHEN, CHARLES M
APPLICANT: KUBERASAMPATH, THANGAVEL
APPLICANT: PANG, ROY HL
APPLICANT: OPPERWANN, HERMANN
APPLICANT: RUEGER, DAVID C
TITLE OF INVENTION: PROTEIN-INDUCED MORPHOGENESIS
                                                                                                                                                                                                                                                                                                         399 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3: TESTA HURWITZ & THIBEAULT EXCHANGE PLACE 53 STATE STREET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               27,829
ER: CRP-052PC
TELEPHONE: 617/248-7000
TELEFAX: 617/248-7100
INFORMATION FOR SEQ ID NO: 27:
SEQUENCE CHARACTERISTICS:
LENGTH: 399 amino acids
TYPE: amino acid
TYPE: amino acid
TYPE: Jinear
MOLECULE TYPE: protein
SEQUENCE 399 AA; 44764 MW; 790568 CN;
                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                    Sequence 23, Application PC/TUS9201968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME: PITCHER ESO, EDMUND R
REGISTRATION NUMBER: 27,829
REFERENCE/DOCKET NUMBER: CRP-O
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617/248-7000
INFORMATION FOR SEQ ID NO: 23:
SEQUENCE CHARACTERISTICS:
LENGTH: 399 amino acids
TYPE: AMINO ACID
                                                                                                                                                                                                                                                                                                         STANDARD;
                                                                                                                            Query Match 1.4%;
Best Local Similarity 38.7%;
Matches 24; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
ADDRESSEE: TESTA HUR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BOSTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STATE: MA
COUNTRY: USI
ZIP: 02109
                                                                                                                                                                                                                                                                                             T 3
PCT-US92-01968-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STREET:
                                                                                                                                                                                                                                                      254 LP 255
                                                                                                                                                                                                                               68 QP 69
                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                  XXXXXX
                                                                                                                                                                                                                                                                                             RESULT
   8888888888
                                                                                                                                                                                                       ò
                                                                                                                                                                                                                             셤
```

```
4
                                                                                                                                                                                                      4
                                                                                                                                                                                                                                                                                               Query Match 1.4%; Score 118; DB 2; Length 399;
Best Local Similarity 38.7%; Pred. No. 2.06e+00;
Matches 24; Conservative 12; Mismatches 22; Indels 4; Gaps
                                                                                                                                                                                                                                                              12 GLALCALGGGHGPRPP-HTC-PQRRLG-ARERRDMQREILAVLGLPGR-PRPRAQPAAAR 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
APPLICANT: SMATT, JOHN
APPLICANT: OPPERMANN, HERMAN
APPLICANT: OZEANBAT, ENGIN
APPLICANT: WUBERASAMPATH, THANGAVEL
APPLICANT: RUGER, DAVID C.
APPLICANT: PANG, ROY H.L.
APPLICANT: PANG, ROY H.L.
APPLICANT: COHEN, CHARLES M.
TITLE OF INVENTION: MORPHOGENIC PROTEIN SCREENING METHOD
NUMBER OF SEQUENCES: 33
CORRESPONDENCES: 33
CORRESPONDENCES: PATENT ADMINISTRATOR, CREATIVE BIOMOLECULES
STREET: HOPKINTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 118; DB 1; Length 399;
Pred. No. 2.06e+00;
12; Mismatches 22; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDIUM TYPE: FILPPPY disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/278,729A
FILING DATE: 20-JUL-1994
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: PITCHER BSq.* EDMUND R.
REGISTRENCE/DOCKET NUMBER: 27,829
REFERENCE/DOCKET NUMBER: CRP-058CPFW
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ¥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY: linear
MOLECULE TYPE: protein
JENCE 399 AA; 44764 MW; 790568 CN;
TOPOLOGY: linear
MOLECULE TYPE: protein
SEQUENCE 399 AA; 44764 MW; 790568 CN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 23, Application US/08278729A Patent No. 5650276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 23, Application US/08278729A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEPHONE: (508) 435-9001
TELEFAX: (508) 435-6951
INFORMATION FOR SEQ ID NO: 23:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH: 399 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 1.4%;
Best Local Similarity 38.7%;
Matches 24; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 4

AC XXXXX

AC XXXXX

DT XX

Sequence 23, Applica

XX

Sequence 23, Applica

CC Patent No. 5650276

CC GENERAL INFORMATIC

CC APPLICANT: SPAN

CC APPLICANT: OPPLICANT: COHN

CC APPLICANT: COHN

CC CONDUTER: DAS

CC CONDUTER: DAS

CC COMPUTER: DATE:

CC COMPUTER: TEBCADION

ATTORNATION FOR SI

CC TELEFAX: (50)

CC TELEFAX: 
                                                                                                                                                                                                                                                                                                                                                                                                                                                      254 LP 255
                                                                                                                                                                                                                                                                                                                                                                                        68 QP 69
```

```
T 6
US-07-901-703-13
                                                             XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                XXXXX
    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                     엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δλ
                     | :| ||:: :||| |: ||:|| || ||:||| ||: ||: :| |: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|: :|
12 GLALCALGGGHGPRPP-HTC-PORRLG-ARERRDMOREILAVIGLPGR-PRPRAQPAAAR 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12 GLALCALGGGHGPRPP-HTC-PORRLG-ARERRDMOREILAVLGLPGR-PRPRAQPAAAR 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: RUBERSAMPATH, THANGAVEL
APPLICANT: RUBGER, DAVID C.
APPLICANT: RUBGER, DAVID C.
APPLICANT: COHEN CHARLES M.
APPLICANT: COHEN CHARLES M.
TITLE OF INVENTION: MORPHOGENIC-INDUCED PERIODONTAL TISSUE
TITLE OF INVENTION: REGENERATION.
NUMBER OF SEQUENCES: 33
CORRESPONDENCE ADDRESS:
ADDRESSEE: PATENT ADMINISTRATOR, CREATIVE BIOMOLECULES
STREET: 45 SOUTH STREET
CITY: HOPKINTON
STATE: MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 118; DB 1; Length 399;
Pred. No. 2.06e+00;
12; Mismatches 22; Indels 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC Compatible
OVERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PAtentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: U$/08/643,763A
FILING DATE: 06-M8-1996
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: FENTON ESq., GILLIAM M.
REGISTRATION NUMBER: 36,508
REFERENCE/DOCKET NUMBER: 36,508
REFERENCE/DOCKET NUMBER: CRP-067CN
TELEPHONE: (617) 248-7560
TELEPHONE: (617) 248-7100
INFORMATION FOR SEQ ID NO: 23:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                      399 AA.
                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOGY: linear
MOLECULE TYPE: protein
JENCE 399 AA; 44764 MW; 790568 CN;
                                                                                                                                                                                                                                                                                                                                                               Sequence 23, Application US/08643763A Patent No. 5733878 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                           Sequence 23, Application US/08643763A
                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                : 399 amino acids
amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY: USA
ZIP: 01748
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy di
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
1.4%;
Best Local Similarity 38.7%;
Matches 24; Conservative
                                                                                                                                                                                                    US-08-643-763A-23
                                                                                                                     254 LP 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             254 LP 255
                                                                            68 QP 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     68 QP 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                              XXXXXX
                                                                                                                                                                                   RESULT
                                                                            a
                                                                                                                                                                                                      g
                                                                                                                   ò
                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
```

```
12 GLALCALGGGHGPRPP-HTC-PQRRLG-ARERRDMQREILAVLGLPGR-PRPRAQPAAAR 67
                                                                                                                               Sequence 13, Application US/07901703
Patent No. 5344654
GENERAL INFORMATION:
APPLICANT: RUEGER, DAVID C
APPLICANT: OPPERMANN, HERMANN
APPLICANT: OZAZANAR, ENGIN
TITLE OF INVENTION: OSTEOGENIC PROPERTIES
NUMBER OF SEQUENCES: 22
CORRESPONDENCE ADDRESS:
ADDRESSEE: TESTA, HURWITZ & THIBEAULT
STREET EXCHANGE PLACE, 53 STATE STREET
CITY: USA
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 399;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: ELOPPY disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION UNMER: US/07/901,703
FILING DATE: 19920616
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     399 AA.
399 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1.4%; Score 118; DB 1; 38st Local Similarity 38.7%; Pred. No. 2.06e+00; Matches 24; Conservative 12; Mismatches 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MOLECULE TYPE: protein
JENCE 399 AA; 44764 MW; 790568 CN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STK-057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 23, Application US/08643563A Patent No. 5707810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTORNEY AGENT INFORMATION:
NAME: PITCHER ESQ, EDMUND R
REGISTRATION NUMBER: 27,829
REFERENCE/DOCKET NUMBER: STK-05
TELECOMUNICATION INFORMATION:
TELEPHONE: 617/248-7000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 23, Application US/08643563A
                                                                                                                    Sequence 13, Application US/07901703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEPHONE: 617/248-7000
INFORMATION FOR SEQ ID NO: 13:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH: 399 amino acids TYPE: AMINO ACID
STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-643-563A-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  254 LP 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         68 QP 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
```

4,

```
12 GLALCALGGGHGPRPP-HTC-PORRIG-ARERRDMOREILAVLGLPGR-PRPRAQPAAAR 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: RUBERASAMPATH, THANGAVEL
APPLICANT: RUBERASAMPATH, THANGAVEL
APPLICANT: RUBERANN, HERMAN
APPLICANT: COPERANN, HERMAN
APPLICANT: COHEN, CHARLES M.
APPLICANT: PANG, ROY H.L.
TITLE OF INVENTION: MORPHOGENIC-INDUCED PERIODONTAL TISSUE
TITLE OF INVENTION: REGENERATION.
NUMBER OF SEQUENCES: 33
CORRESPONDENCE ADDRESS:
ADDRESSEE: PATENT ADMINISTRATOR, CREATIVE BIOMOLECULES
STREET: HOPKINTON
                                                ADDRESSEE: PATENT ADMINISTRATOR, CREATIVE BIOMOLECULES STREET: 45 SOUTH STREET CITY: HOPKINTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 118; DB 1; Length 399;
Pred. No. 2.06e+00;
12; Mismatches 22; Indels
                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IDM PC COMPATIBLE
COMPUTER: IDM PC COMPATIBLE
COMPUTER: IDM PC COMPATIBLE
COMPANING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN PC-DOS/MS-DOS
SOFTWARE: PATENTIN PATA:
APPLICATION NUMBER: US/08/479,666
FILING DATE: 07-JUN 1995
CLASSIFICATION: 435
ATTON NUMBER: 07-JUN 1995
ATTON NUMBER: 36,508
REBERRNC-POCKET NUMBER: 36,508
REBERRNC-POCKET NUMBER: 36,508
REBERRNC-POCKET NUMBER: 36,508
TELEPHONE: (508) 435-9001
TELEFAN: (508) 435-901
TELEFAN: (508) 435-6951
INFORMATION FOR SEQ ID NO: 10:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   399 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY: linear
MOLECULE TYPE: protein
SEQUENCE 399 AA; 44764 MW; 790568 CN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 23, Application US/08155343A Patent No. 5656593 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 23, Application US/08155343A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH: 399 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 1.4%;
Best Local Similarity 38.7%;
Matches 24; Conservative
    NUMBER OF SEQUENCES: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ZIP: 01748
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STATE: MA
COUNTRY: USA
                                                                                                                                         COUNTRY: US
ZIP: 01748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-155-343A-23
                                                                                                                      STATE: MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       254 LP 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       68 QP 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12 GLALCALGGGHGPRPP-HTC-PQRRLG-ARERRDMQREILAVLGLPGR-PRPRAQPAAAR 67
            APPLICANT: SMARY. JOHN.
APPLICANT: SMARY. JOHN.
APPLICANT: SMARY. JOHN.
APPLICANT: OPPERMANN HERMAN
APPLICANT: OZRAYNAK, ENGIN
APPLICANT: OZRAYNAK, ENGIN
APPLICANT: FUBGER, DAVID C.
APPLICANT: COHEN, ROY H.L.
APPLICANT: COHEN, ROY H.L.
APPLICANT: COHEN, ROY H.L.
APPLICANT: COHEN, ROY H.L.
APPLICANT: COHEN, SMARY ADMINISTRATOR, CREATIVE BIOMOLECULES
STREET: 45 SOUTH STREET
CITY: HOPKINTON
STATE: MA
COUNTRY: USA
ZIP: 01748
ZIP: 01748
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.30
CURRENT APPLICATION NUMBER: US/08/643,563A
FILING DATE: 06-MAY-1996
CLARSSIFICATION NUMBER: US/08/643,563A
APPLICATION: 435
APPLICATION WATER TOWNER TOW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 399;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 118; DB 1; Length 399
Pred. No. 2.06e+00;
12; Mismatches 22; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 10, Application US/08479666
Patent No. 5652337
GENERAL INPORMATION:
APPLICANT: OPPERMANN, HERMANN
APPLICANT: OPPERMANN, ENGIN
APPLICANT: RUBERASAMPATH, THANGAVEL
APPLICANT: RUBERASAMPATH, THANGAVEL
APPLICANT: RUBERR, DAVID C.
APPLICANT: ROBGER, DAVID C.
APPLICANT: COHEN, CHARLES M.
TITLE OF INVENTION: OP3-INDUCED MORPHOGENESIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        399 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CRP-058CN2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTORNEY/AGENT INFORMATION:
NAME: TWOMEY ESQ., MICHAEL J.
REGISTRATION NUMBER: 38,349
REGISTRATION NUMBER: 28,349
TELECOMMUNICATION INFORMATION:
TELEPHONE: (508) 435-9001
TELEFAX: (508) 435-6951
INFORMATION FOR SEQ ID NO: 23:
SEQUENCE CHARACTERISTICS:
LENGTH: 399 amino acids
TYPE: amino acids
TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOLECULE TYPE: protein
FENCE 399 AA; 44764 MW; 790568 CN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 10, Application US/08479666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             / Match 1.4%;
Local Similarity 38.7%;
hes 24; Conservative
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-479-666-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          254 LP 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               68 QP 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
```

RESULT

셤 ô

ò

```
12 GLALCALGGGHGPRPP-HTC-PQRRLG-ARERRDMQREILAVLGLPGR-PRPRAQPAAAR 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12 GLALCALGGGHGPRPP-HTC-PQRRLG-ARERRDMQREILAVLGLPGR-PRPRAQPAAAR 67
                                                                                                                                                                                                                                      4; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION: PROSTHETIC DEVICES HAVING ENHANCED TITLE OF INVENTION: OSTEOGENIC PROPERTIES NUMBER OF SEQUENCES: 22 CORRESPONDEMES ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 399;
                                                                                                                                                                                           Length 399;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 1.4%; Score 118; DB 2; Length 399; Best Local Similarity 38.7%; Pred. No. 2.06e+00; Matches 24; Conservative 12; Mismatches 22; Indels
                                                                                                                                                                                                                                    12; Mismatches 22; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER: INDEPT disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US93/05446
FILING DATE: 19930608
ATTORNEY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     399 AA.
                                                                                                                                                                                       Query Match
1.4%; Score 118; DB 2; I
Best Local Similarity 38.7%; Pred. No. 2.06e+00;
Matches 24; Conservative 12; Mismatches 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE: Creative BioMolecules, Inc.
STREET: 35 South Street
CITY: Hopkinton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATTORNEY/AGENT INFORMATION:
NAME: PITCHER ESQ, EDMUND R
REGISTRATION NUMBER: 27,829
REFERENCE/DOCKET NUMBER: STK-057
TELEPHONE: 617/248-7000
INFORMATION FOR SEQ ID NO: 13:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 13, Application PC/TUS9305446 GENERAL INFORMATION: APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MOLECULE TYPE: protein
ENCE 399 AA; 44764 MW; 790568 CN;
                                                                                                     TOPOLOGY: linear
MOLECULE TYPE: protein
JENCE 399 AA; 44764 MW; 790568 CN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 13, Application PC/TUS9305446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 399 amino acids TYPE: AMINO ACID
                                                                  : 399 amino acids
amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
TELEFAX: 617/248-7100
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LT 11
PCT-US93-05446-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY: US
ZIP: 01748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                      254 LP 255
                                                                                                                                                                                                                                                                                                                                                               68 QP 69
                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
ID PC
                                                                                                                                                                                                                                                                                                                                                               a
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
      888888888
                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | :| ||:: :||| |: ||:|| || || || || |||| ||: :| ||: :||: ||: ||: ||: :||: ||: ||: :||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12 GLALCALGGGHGPRPP-HTC-PQRRLG-ARERRDMQREILAVLGLPGR-PRPRAQPAAAR 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: MORPHOGEN-INDUCED NERVE REGENERATION AND TITLE OF INVENTION: REPAIR NUMBER OF SEQUENCES: 33
CORRESPONDENCE ADDRESS:
ADDRESSE: CREATIVE BIOMOLECULES, INC.
STREET: 35 SOUTH STREET
CITY: HOPKINTON STREET
STREET: MASSACHUSETTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
1.4%; Score 118; DB 1; Length 399;
Best Local Similarity 38.7%; Pred. No. 2.06e+00;
Matches 24; Conservative 12; Mismatches 22; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ZIP: 01748
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PAtentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US93/07231
FILING DATE: 19930729
                                                            SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                399 AA.
                                                                                                 APPLICATION DATE:
CARGINITATION LAID
CLASSIFICATION: 435
CLASSIFICATION: 435
ATTONNEY/AGENT INFORMATION:
NAME: FENTON ESQ., GILLIAN M.
REGISTRATION NUMBER: 36,508
REFERENCE/DOCKET NUMBER: CRP-067FW
TELEPHONE: (617) 248-7560
INFORMATION FOR SEQ ID NO: 23:
SEQUENCE CHARACTERISTICS:
LENGTH: 399 amino acids
TYPE: amino acid
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
SEQUENCE 399 AA; 44764 MW; 790568 CN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CRP-070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 23, Application PC/TUS9307231
GENERAL INFORMATION:
APPLICANT:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 23, Application PC/TUS9307231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: KELLEY, ROBIN D.
REGISTRATION NUMBER: 34,637
REPRENCE/DOCKET NUMBER: CRP-
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617/248-7000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          л 10
РСТ-US93-07231-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              254 LP 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     68 QP 69
                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
ID PC
XX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8888888888888888888888888888
```

ô 硆 ò XXXXX

RESULT

```
12 GLALCALGGGHGPRPP-HTC-PQRRLG-ARERRDMQREILAVLGLPGR-PRPRAQPAAAR 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4; Gaps
                                                                                                                                                                                                                                                                                                                                            MORPHOGEN-ENRICHED DIETARY COMPOSITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 118; DB 2; Length 399;
Pred. No. 2.06e+00;
12; Mismatches 22; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US93/07190
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                  399 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             399 AA.
                                                                                                                                                                                                                                   Sequence 23, Application PC/TUS9307190
GENERAL INFORMATION:
APPLICANT:
TITLE OF INVENTION: MORPHOGEN-ENRICHED DI.
NUMBER OF SEQUENCES: 33
CORRESPONDENCE ADDRESS:
ADDRESSE: CREATIVE BIOMOLECULES, INC.
STREET: 35 SOUTH STREET
CITY: HOPKINTON
STATE: MA
                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME: KELLEY, ROBIN D.
REGISTRATION NUMBER: 34,637
RELECOMMOLOCATE NUMBER: CRP-071
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617/248-7100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MOLECULE TYPE: protein
JENCE 399 AA; 44764 MW; 790568 CN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 23, Application US/08462623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX: 617/248-7100
INFORMATION FOR SEQ ID NO: 23:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     399 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 1.4%;
Best Local Similarity 38.7%;
Matches 24; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                          USA
                                                                                                                                               JT 13
PCT-US93-07190-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY: US
ZIP: 01748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-462-623-23
                                                                                                254 LP 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                254 LP 255
                                                                  68 QP 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                68 QP 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
ID US-
XX AC XXX
XX XX
DT
XX SE
                                                                                                                                               RESULT
                                                                 셤
                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ద
                                   ö
                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4
194 GPPLYQLGAATQARPPHASGPRRLGCERAWNHSVREAGVPLGLPAPGARRRGGSASRS 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 1.4%; Score 118; DB 2; Length 399; Best Local Similarity 38.7%; Pred. No. 2.06e+00; Matches 24; Conservative 12; Mismatches 22; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                   ZIP: 01748

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US93/10520
                                                                                                                                                                                                                                                                                                      TITLE OF INVENTION: OP3-INDUCED MORPHOGENESIS NUMBER OF SEQUENCES: 13 CORRESPONDENCE ADDRESS: ADDRESSE: ADDRESSE: ADDRESSE: ADDRESSE: ADDRESSE: CREATIVE BIOMOLECULES, INC. STREET 45 SOUTH STREET CITY: HOPKINTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/667,274
FILING DATE: 11-WAR-1991
PRIOR APPLICATION NUMBER: US 07/752,764
FILING DATE: 30-AuG-1991
PRIOR APPLICATION NUMBER: US 07/753,059
FILING DATE: 30-AuG-1991
PRIOR APPLICATION NUMBER: US 07/753,857
FILING DATE: 30-AuG-1991
PRIOR APPLICATION NUMBER: US 07/752,857
FILING DATE: 31-JUL-1992
PRIOR APPLICATION NUMBER: US 07/923,780
FILING DATE: 31-JUL-1992
PRIOR APPLICATION NUMBER: US 07/923,780
FILING DATE: 31-JUL-1992
PRIOR APPLICATION NUMBER: US 07/923,780
FILING DATE: 31-JUL-1992
ATTORNEY/AGENT INFORMATION:
NUMBER: US 07/922,813
FILING DATE: 31-JUL-1992
ATTORNEY/AGENT INFORMATION:
NUMBER: US 07/922,813
FILING DATE: DITCHER ESO, EDMUND R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME: PITCHER ESQ, EDMUND R
REGISTRATION NUMERS: 27,829
REFERENCE/DOCKET NUMBER: CRP-076PC
TELECOMMUNICATION INFORMATION:
                                                                                                                               PRT;
                                                                                                                                                                                                                                                         Sequence 10, Application PC/TUS9310520 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY: linear
MOLECULE TYPE: protein
JENCE 399 AA; 44764 MW; 790568 CN;
                                                                                                                                                                                                                          Sequence 10, Application PC/TUS9310520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEPHONE: (508)435-9001
INFORMATION FOR SEQ ID NO: 10:
SEQUENCE CHARACTERISTICS:
                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           : 399 amino acids
amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                           USA
                                                                                                                                                                                                                                                                                                                                                                                        CITY: HOPKII
STATE: MA
COUNTRY: US/
ZIP: 01748
                                                                                                              T 12
PCT-US93-10520-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE:
                                                             254 LP 255
                               68 QP 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
```

US-08-951-733-20.rai

```
FILING DATE:
                                                                                                                                                                                                                                                                                                                         TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Job time : 62 secs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 254 LP 255
                                                                                                                                                                                                                                                                                                                                                                                                                                              68 QP 69
                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                              g
οy
  GENERAL INCORPATION:

APPLICANT: COHEN, CHARLES M.
APPLICANT: COHEN, CHARLES M.
APPLICANT: COHEN, CHARLES M.
APPLICANT: COHEN, CHARETE, MARC F.
APPLICANT: RUBGER, DAVID C.
APPLICANT: RUBGER, DAVID C.
APPLICANT: PANG, ROY H.L.
APPLICANT: PANG, ROY H.L.
APPLICANT: PANG, ROY H.L.
APPLICANT: PANG, ROY H.L.
APPLICANT: SMART, JOHN E.
TITLE OF INVENTION: ULCERS.
NUMBER OF SUURNICE: 33
CORRESPONDENCE ADDRESS:
ADDRESSE: PATENT ADMINISTRATOR, CREATIVE BIOMOLECULES
STREET: 45 SOUTH STREET
CITY: HOPKINTON
STATE: MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12 GLALCALGGGHGPRPP-HTC-PQRRLG-ARERRDMQREILAVLGLPGR-PRPRAQPAAAR 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 399;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             / Match 1.4%; Score 118; DB 1; Length 399
Local Similarity 38.7%; Pred. No. 2.06e+00;
nes 24; Conservative 12; Mismatches 22; Indels
                                                                                                                                                                                               COUNTE: USA
ZIP: 01748

COMPUTER REABABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/NS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/462,623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       399 AA.
                                                                                                                                                                                                                                                                                                                                                  REGISTRATION NUMBER: 36,508
REGISTRATION NUMBER: 36,508
REFERENCE/DOCKET NUMBER: CRP-074CN
TELECOMMUNICATION INFORMATION:
TELEPHONE: (508) 435-6901
TELEFAX: (508) 435-6951
INFORMATION FOR SEQ ID NO: 23:
SEQUENCE CHARACTERISTICS:
LENGTH: 399 antion acids
                                                                                                                                                                                                                                                                                      FILING DATE:
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/445,882
FILING DATE: 22-MAY-1995
ATTORNEY AGENT INFORMATION:
GENTLAND FROM GILLIAN M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOLECULE TYPE: protein
ENCE 399 AA; 44764 MW; 790568 CN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 8, Application PC/TUS9307189 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 8, Application PC/TUS9307189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LT 15
PCT-US93-07189-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                254 LP 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            68 QP 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8.55 E X E X S S S
 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
```

```
TITIE OF INVENTION: NOVEL MORPHOGENIC PROTEIN COMPOSITIONS
TITIE OF INVENTION: OF MATTER
CC CORRESPONDENCE ADDRESS:
CC CORRESPONDENCE ADDRESS:
CC CORRESPONDENCE ADDRESS:
CC CORRESPONDENCE ADDRESS:
CC STREET: 135 SOUTH STREET
CC STREET: 135 SOUTH STREET
CC STREET: 135 SOUTH STREET
CC COMPUTER: LOPEY disk
CC COMPUTER: The PRICATION DATA:
CC CORRESPONDENCE: THE PRICATION DATA:
CC CRASSIFICATION NUMBER:
CC CLASSIFICATION CAPACITION:
CC CRASSIFICATION NUMBER:
CC CLASSIFICATION NUMBER:
CC CLASSIFICATION CAPACITION:
CC CRASSIFICATION NUMBER:
CC CLASSIFICATION NUMBER:
CC CLASSIFICATION
C
```

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

MPsrch_nna n.a. - n.a. database search, using Smith-Waterman algorithm with gap extension penalties as well as gap opening penalties

Fri Dec 25 08:54:27 1998; MasPar time 9229.89 Seconds 680.010 Million cell updates/sec Run on:

Tabular output not generated.

>US-08-951-733-13 (1-2848) from US08951733.seq (1 of 3) 2848 Title: Description: Perfect Score: N.A. Sequence: Comp:

1 CACGCGTCCGGGCACGCTG.......GATGCCGGCCCACGGCCTAT 2848
GTGCGCAGGCCCGTCGCGAC......CTACGGCCGGGTGCCGGATA

TABLE default Gap open 30; Gap extend 1 Scoring table:

567134 seqs, 1101898692 bases x 2 Dbase 0; Query 0 Nmatch STD: Searched:

Post-processing: Minimum Match 0% Listing first 45 summaries

Database:

1:em_ba 2:em_fun 3:em_htg 4:em_hum1 5:em_hum2 6:em_in 7:em_om 8:em_or 9:em_ov 10:em_pat 11:em_ph 12:em_pl 13:em_ro 14:em_vi genbank107

Database:

15:qb_bal 16:qb_ba2 17:qb_htg 18:qb_in 19:qb_om 20:qb_ov 21:qb_pat 22:qb_pl 23:qb_pl1 24:qb_pl2 25:qb_pr1 22:qb_pr2 22:qb_pr3 28:qb_rc 29:qb_st 30:qb_sts 31:qb_sy 32:qb_un 33:qb_v1

Mean 11.679; Variance 6.056; scale 1.928 Statistics: Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

					SUMMARIES		
Result		& C					
NO.	Score	Match	Match Length DB ID	DB	ΩI	Description	Pred. No.
-	2837	99.6	.6 4015 27	27	AF015950	Homo sapiens telomeras	0.00e+00
~	2824	99.5	8960	31	AF043739	Synthetic construct hu	0.00e+00
e	2823	99.1	4027	27	AF018167	Homo sapiens telomeras	
4	825	29.0	3426	78	AF051911	Mus musculus telomeras	0
ß	823	28.9	3369	28	AF073311	Mus musculus telomeras	
9	129	4.5	201	28	AF029235	Mus musculus telomeras	1.63e-71
7	67	2.4	7218	21		Sequence 14 from paten	1.13e-25
დ ს	49	1.7	7218 21	21	I66494	Sequence 14 from paten	1.72e-13
თ	37	1.3		26		Homo sapiens chromosom	5.03e-06
10	34	1.2		71		Sequence 5 from patent	
c 11	35	1.2		71		Sequence 5 from patent	7.37e-05
12	3.4	1.2		26		Homo santens chromosom	

13 30 1.1 201 21 A10158 S.griseus gene for pre 4.44e-02 2 1.1 201 21 A10161 Synthetic DNA for prep 4.44e-02 1.1 201 21 A10159 Synthetic DNA for prep 4.44e-02 1.1 201 21 A10159 Synthetic DNA for prep 4.44e-02 1.1 201 21 A10159 Synthetic DNA for prep 4.44e-02 1.2 30 1.1 216021 26 HDAC07487 HOMO Saplens Chromosom 1.28e-02 1.0 6661133 HG48SIRZ27 Epstein-Barr virus (wil 1.50e-01 2.2 2.2 2.2 2.2 2.2 2.2 2.2 2.2 2.2 2.
13 30 1.1 201 21 A10158 S.griseus gene for 15 30 1.1 201 21 A10162 Synthetic DNA for p 16 30 1.1 201 21 A10162 Synthetic DNA for p 17 30 1.1 201 21 A10169 Synthetic DNA for p 18 31 1.1 216621 26 HOACO04487 Homo sapiens Chromo 18 1.0 1663 19 WV092534 Mustela vison micro 20 1.0 1663 19 WV092534 Bostein-Barr virus 21 28 1.0 39073 23 SPAC2E1 Synthe chromosome 22 28 1.0 39073 23 SPAC2E1 Synthe chromosome 23 28 1.0 39073 23 SPAC2E1 Synthe chromosome 24 29 1.0 76094 25 HS179D3A Grana DNA sequence 25 27 0.9 565 21 E04076 GDNA encoding envel 25 27 0.9 904 33 HS4BHLF Epstein-Barr virus 27 0.9 926 15 SWAPCDAG GDNA encoding envel 28 26 0.9 1341 20 CHKDILRB Synarcescens proBA 29 2926 15 SWAPCDAG GDNA encoding envel 20 2926 122491 17 HS436C18 HWMan DNA sequence 20 2926 122491 17 HS426C18 HWMan DNA sequence 20 2926 122491 17 HS426C
13 30 1.1 201 21 A10158 14 30 1.1 201 21 A10161 15 30 1.1 201 21 A10162 16 30 1.1 201 21 A10162 18 31 1.1 216021 26 HUACO0476 19 28 1.0 6011 31 HSASIR22 22 28 1.0 15807 15 MED72662 23 28 1.0 31812 24 SPUNK4 24 29 1.0 76094 25 HS179D3A 25 27 0.9 904 31 HSABILE 26 0.9 1341 20 CHKDILRB 27 0.9 2926 15 SMAPROBAG 28 26 0.9 2926 15 SMAPROBAG 29 26 0.9 2926 15 SMAPROBAG 30 26 0.9 2926 15 SMAPROBAG 31 27 0.9 5000 31 HSAUZIR2A 32 26 0.9 2926 15 SMAPROBAG 34 26 0.9 12949 16 AF011922 35 27 0.9 5591 15 AF011922 36 0.9 12949 16 HSNSH6 37 26 0.9 12949 16 HSNSH6 38 26 0.9 123491 7 HSJ26A5 44 27 0.9 125815 17 HSJ26A5 44 27 0.9 184113 33 HSAUSIRA 45 27 0.9 184113 33 HSAUSIRA 46 27 0.9 184113 33 HSAUSIRA 47 27 0.9 184113 33 HSAUSIRA
13 30 1.1 201 14 30 1.1 201 15 30 1.1 201 18 31 1.1 201 19 28 1.0 601 20 29 1.0 601 21 29 1.0 601 22 28 1.0 391812 23 28 1.0 31812 24 29 1.0 76094 25 27 0.9 565 26 0.9 1341 27 0.9 5551 31 27 0.9 5050 32 26 0.9 1341 27 26 0.9 1341 28 26 0.9 1341 29 26 0.9 1341 20 26 0.9 1341 21 22 292 22 27 0.9 5650 23 26 0.9 1341 24 26 0.9 12849 26 0.9 12849 27 0.9 64078 28 26 0.9 12849 29 26 0.9 12849 20 0.9 12849 20 0.9 12849 21 22 0.9 12849 22 0.9 12849 23 26 0.9 12849 24 26 0.9 12849 26 0.9 12849 27 0.9 185191 28 26 0.9 12849 29 26 0.9 12849 20 0.9 12849 20 0.9 12849 21 0.9 147216
113 114 115 116 117 118 119 119 119 119 119 119 119
24 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
00 00 00 00 0

## ALIGNMENTS

150 4015 bp mRNA PRI 16-AUG-1997 Rapiens telomerase reverse transcriptase (hTRT) mRNA, complete 150	Homo sapiens Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.	Nakamura,T.M., Morin,G.B., Chapman,K.B., Weinrich,S.L., Andrews,W.H., Lingner,J., Harley,C.B. and Cech,T.R. Telomerase catalytic subunit homologs from fission yeast and human Science 277 (5328), 955-959 (1997)	9/40/0523 2 (bases 1 to 4015) Morin,G.B. Direct Submission Submitted (24-JUL-1997) Geron Corporation, 230 Constitution Drive, Menlo Park, CA 94025, USA	Location/Qualifiers 14015. /orgatism="Homo sapiens" /db_xref="taxon:9606" /tissue_type="kidney" /day_stage="embryo" /chromosome="5"	1 .4015 /dene="hyrr"	563454 /gene="http://condon.etart"
AF015950 4 Homo sapiens t cds. AF015950 92330016	Homo sapiens Eukaryotae; mi Vertebrata; Ma Homo.	Nakamura, T.M., Andrews, W.H., Telomerase cat Science 277 (5	2 (bases 1 to 40] 2 (bases 1 to 40] Morin,G.B. Direct Submission Submitted (24-JUL, Menlo Park, CA 94(	Locat 1. 4 7. 1 7. 1 7. 1 7. 1 7. 1 7. 1 7. 1 7. 1	14 /gene	56 /gene
RESULT 1 LOCUS DEFINITION ACCESSION NID KEYWORDS SOURCE	NISM	AUTHORS TITLE JOURNAL		FEATURES SOUICE	gene	CDS

```
/product="telomerase reverse transcriptase"
/db_xref="PID:g2330017"
/db_xref="PID:g2330017"
/translation="MPRAPRCRANKSLIERHYREVLPIATEYRRIGPOGWRLVORGUP
AAFRALVAQCLUVCVPWDARPPAASEPROVSCLKELVARVLORLCERGARNVLAFGFA
LLIDGARGGPPEAFTTSVRSYLPNYUTDALRGSGRAWGLLLRRYGDDVLYHLLARCALFV
LVARSCAYOWCGPPLYQLGAATOARPPHASCPRRAGCERAWHSYRERGSDRGFCVVSPA
RPAERATSLEGGALSCTRHENFBSVGROHHAGPPSTREPRPRWDTPCPPYVAETHHELYS
SGDKEQLRPSFLLSSLRPSLTGARRLVETIFLGSRPWMPGTPRILPRLPRREPUND
FLELLGHAAQCPSYGVLLKTHOPLARAYTPAGYCARRERDGSVAAPEEEDTDPRRLVQ
LLAGHSSPWOVYGFVRACLRRAVPPGLAGSRHWERRERDGSVAAPEEEDTDPRRLVQ
LLAGHSSPWOVYGFVRACLRRAVPPGLAGSRHWERRERDSVANFEERPRYGGL
TWKMSYRDCAMLRRSPGOGVVAABHULREELIARFLHWILMSYTVVELLRSFFYTFT
TFORNRLFFYRKSVGSGCVPAABHULREELIASFFYOWET
TFORNRLFFYRKSVGSGCVPAABHULREELIASVANFEARRREALLGANSVLG
LDDHRAWRFYLLKVRSAGDPPELYFVKVOUTGARDDITTPODLATTASILRED
TROGLLLRLVDDELLYFRRERRARELTSRVALFSSLLSTLGANSVLG
LDDHRAWRFYLLKVRSAGNOPPELYFYKVDVTGARDDITTPODLATSRVAVVRFYVEDBAL
IRASSGLFVVFLRRHCHHAVIFIRTATFRIRTLYNGSVENGVRRYVVNLRKYVVNFPYEDBAL
GGTAFVQMPAHGLIFPRRGSSYGATSIRASLTFNRGFRAGRNMRR
KLFCVLLKLVDDELLDTRILEVGSDYSSYARTSIRASLTFNRGFRAGRNMRR
KLFCVLLKLVDDELLDTRILENGTVONIYKTILLQAYRFRACVLQLPFHQOVWKNPT
FFLRVISDTASLCYSILRARNAGMSGAGPLFSEANQMLCHQAFLLKTRHRVT
FFLRVISDTASLCYSILRARNAGMSGAGPLFSEANQWLCHQAFLKTRHRVT
FFLRVISDTAST
TOTAL THATTER THE TRANSTLENGT THENGFRAGRNMRR
FFLRVISDTASLCYSILRARNAGMSGAGPLFSEANQWLCHQAFLLKTRHRVT
FFLRVISDTAST
TYPLLGSLRTAQTGLSRLEOTTIJALERAAARPREPEFRILLD"
TYPLLGSLRTAQTGLSRLEOTTIJALERAAARPREPEFRILLTITALERAANPRALFERTURF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCAGCCACTACCGCGAGGTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTGCTGGACGGGGCCCGGGGGCCCCCGGAGGCCTTCACCACCAGCGTGCGCAGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGGCCACCCCCGCGATGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGCTGGCCACGTTCGTGCGGCGCCTGGGGCCTGGCGGCTGGTGCAGCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGAGTGCTGCAGAGGCTGTGCGAGCGCGCGAAGAACGTGCTGGCCTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCGAGTGCTGCAGAGGCTGTGCGAGCGCGCGCGAAGAACGTGCTGGCCTTCGGCTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 4015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 2837; DB 27;
Pred. No. 0.00e+00;
0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19.6%;
Local Similarity 100.0%;
Les 2837; Conservation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421
```

윱

à

셤

g

à

g

à g ŏ

ŏ

g

ò 셤 ò g

BASE CC ORIGIN

```
1091
                                                                                                                                                    1020
                                                                                                                                                                   1031
                                                                                                                                                                                                                                                           1211
                                                                                                                                                                                                                                                                                                                       1331
                                                                                                                                                                                                                                                                                                                                                                   1440
                                                                                                                                                                                                                                                                                                                                                                                 1451
                                                                                                                                                                                                                                                                                                                                                                                                                             1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAGTGTCTGGAG 1800
                                                             840
CTGGAACCATAGCGTCAGGGAGGCGGGGTCCCCTGGGCCTGCCAGCCCCGGGTGCGAG 720
                                                                                          900
                                                                                                         911
                                                                                                                       960
                                                                                                                                     971
              CTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCTTGGGCCTGCCAGCCCCGGGTGCGAG
                                                           GCCCTCCTTCCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGGA
                                                                                                                                                                                                                                                                        GAGGCGCGGGGGCAGIGCCAGCCGAAGICTGCCGTTGCCCAAGAGGCCCAGGCGTGGCGC
                                     AGCCGGTGTCTGTGCCCGGGAGAAGCCCCAGGGCTCTGTGGCCGCCCCCGAGGAGGAGGAGA
                                                                                                                                                                                                                                                                                                                                                                         GAGCCCAGGGGTTGGCTGTGTTCCGGCCGCAGCAGCCCTCTGCGTGAGGAGATCCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAAGTICCIGCACIGGCIGAIGAGIGIGIACGICGICGAGCICCICAGGICTITITA
                                                                                          GCGTGGACCGAGTGACCGTGGTTTCTGTGTGTGTCACCTGCCAGACCCGCCGAAGAAGC
                                                                                                                                                   GCACCACGCGGCCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTCC
                                                                                                                                                                                 CCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCG
                                                                                                                                                                                                                                                                                                                                                   AGCCGGTGTCTGTGCCCCGGGAGAAGCCCCAGGGCTCTGTGGCGGCCCCCCGAGGAGGA
                                                                                                                                                                                                                                                                                                                                                                  CACAGACCCCCGTCGCTGCTGCTCCTCCGCCAGCAGCAGCCCCTGGCAGGTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                             CAACGAACGCCGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCTCTCGCTGCAGGAGCTGACGTGGAAGATGAGCGTGCGGGGACTGCGCTTGGCTGCGCAG
                                                                                                                                                                                                                                                                                                                                                                                               CGGCIICGIGCGGGCCIGCCIGCCGGCIGGIGCCCCCCAGGCCICTGGGGCICCAGGCA
                                                                                                                                                                                               1032
                                                                                                                                                                                                              1081
                                                                                                                                                                                                                             1092
                                                                                                                                                                                                                                                         1152
                                                                                                                                                                                                                                                                                        1212
                                                                                                                                                                                                                                                                                                                    1272
                                                                                                                                                                                                                                                                                                                                                   1332
                                                                                                                                                                                                                                                                                                                                                                                1392
                                                                                                                                                                                                                                                                                                                                                                                                             1452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1692
               672
                                            732
                                                            781
                                                                          792
                                                                                                       852
                                                                                                                      901
                                                                                                                                                   961
                                                                                                                                                                                 1021
                                                                                                                                                                                                                                            1141
                                                                                                                                                                                                                                                                         1201
                                                                                                                                                                                                                                                                                                                                    1321
                                                                                                                                                                                                                                                                                                                                                                 1381
                                                                                                                                                                                                                                                                                                                                                                                               1441
                                                                                                                                                                                                                                                                                                                                                                                                                            1501
                                                                                                                                                                                                                                                                                                                                                                                                                                          1512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1632
661
                              721
                                                                                                                                    912
                                                                                                                                                                  972
                                                                                                                                                                                                                                                                                                       1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                         1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1741
             상
원
                                                          g
                                                                                                                    g
                                       ŏ
                                                                         ò
                                                                                        셤
                                                                                                   à
                                                                                                                                                쉱
                                                                                                                                                                               셤
                                                                                                                                                                                                         쉱
                                                                                                                                                                                                                                        g
                                                                                                                                    à
                                                                                                                                                                ò
                                                                                                                                                                                               ö
                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                     유
                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                 δŽ
                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                  å
                                                                                                                                                                                                                                                                                                                                                              용
                                                                                                                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                         원
                                                                                                                                                                                                                                                                                                                                                                                                                                         Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
```

540 551 9 611 999

CCGCGTGGCCGACGACGTGCTGGTTCACCTGCTGGCACGCTGCGCGCTCTTTGTGCTGGT

432 481 492 541 552 601 612

ò

g

ŏ 셤 ò 671

٩

g

GGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCTCGGCGCTGCCAC

491

Qy 2832 GCGGCCCACGGCCTAT 2848		(LIEAL/LEDIZ) MINNA GIRU 5 SEQUENCE. N AF043739 93023054	synthetic co synthetic co artificial s	REFERENCE 1 (bases 1 to 8960) AUTHORS Counter, C.M., Weyerson, M., Eaton, E.N., Ellisen, L.W., Caddle, S.D., Haber, D.A. and Weinberg, R.A. TITLE Telomerase activity is restored in human cells by ectopic	expression of hTBRT (hEST2), the catalytic subunit of oncogene 16 (9), 1217-1222 (1998) 98187713 2 (bases 1 to 8960)	AUTHOKS COUNTEF, C.M., Meyerson, M., Eaton, E.N., Ellisen, L.W., Caddle, S.D., Haber, D. and Weinberg, R.A.  TITLE Direct Submission JOURNAL Submitted (20-JAN-1998) Whitehead Institute, 9 Cambridge Center,	Cambridge, MA V2142, USA FEATURES Location/Qualifiers Source 1. :8960 /organism="Synthetic construct"	/db_xref="taxon:32830" source order(1. 1101,4606. 18960) /note="mammalian expression vector; see GenBank Accession Number U47120"	/Organism="CLOning Vector pcI-neo" /db_xref="taxon:45772" 11024542 /note="telomerase catalytic subunit hTERI/hEST2 mRNA"		gene 11024542 /gene="http://hEST2" CDS 11474605 /note="telomerase/reverse transcriptase"	/codon_start=1 //trapbe=11 /product="telomerase catalytic subunit" /db_xref="PID:g3023055"	/translation="MPRAPRCRAVRSLIRSHYRRULPLATFVRRLGPGGWRLVORGDP AAFRALVAQCLVVVPWDARPPPAAPSFROYSCLKELVARVLGRLGERGAKNVLAFGFA LLDGARGGPPEAFTTYSYRSYLPMTYDALRGSGAWGLLLRRVGDDVLHLLARCALFV LVAPSCAYQVCGPPLYQLGAATQARPPPHASGPRRRLGCERAWNHSVREAGVPLGLPA	PGARRRGGSASKEJELPKREPRGAAPEPERTPVGGGSWAHPGRTRGPSDRGFCVVSPA RPAEEATSLEGALSGTRUSHESVGRQHHAGPFSTSRPPRWDTOPPVYAETKHFLYS SGDKEQLARSFLLSSLERARTRETTET IFLGSRPWMFGTPRELPREPORTREVE FLELLGNHAQCPYGVLLKTHCPLRAAVTPAAGVCAREKPQGSVAAPEEEDTDPRRLVQ	LIRQHSSPWQVYGFVRACIRRIVPPGIMGSRHNRRRFIRNTKRISLGRHAKLSLOEL TWKMSVRGCAWLRRSPGVGCVABAENRIEDEILARFILHWIMSVYVVELLRSFFYVET TFORNRLFFYRKSVWSKLOSIGIRQHLKRVQLREIJSEABYRQHREARPALLISRLRFI PKPDGLRPIVNMDYVVGARIFRREKRAERLISRVKALFSVLNYERARRPGLLGASVUG	LIDDIHRAMRITEVLAKRAQDEPEELYEVKVUVTGAXDTIEQDRITEVIASIIEROMTYC VRRYAVVQRAAHGHVRRAFKVSTLIDIQPYMRQFVAHLQETSPLRDAVVIEGSSSL NRASSGLEDVFLRRMHHRVRIRGKSYVQCQGIPQGSILSTLLCSLCYGDMENKLFAG IRRDGLLLRLVDDFLLVTPHLTHAKTFLRTLVRGVPEYGCVVNLRKTVVNFPVEDEAL	GGTAFVOMPAHGLEPWCGLLLDPRTLEVOSDYSSYARTSIRASITENRGERAGRMRR KLFGVLELKCHSLELDLQVNSLOTVCTNIYKILLLQAYRFHACVLQLPFHQQVWRNPT FFLRVISDPASLCYSILARKNAGMSLGARGAAGPLPSBAVGWLCHQAFLLKLTRHRVT YVPLLGSLRTAQTQLSRKLPGTTLTALEAAANPALPSDFKTILDYPYDVPDYAGYPYD	VPDYAG" 45434605 /note="engineered based on the epitope for the
	Db 1801 CAAGTIGCAAAGCATIGGAAICAGACAGCACITGAAGAGGGTGCAGCIGCGGGAGCIGIC 1860 	Db 1861 GGAAGCAGAGGTCAGGCAGCATCGGGAAGCCAGGCCCGCCTGCTGACGTCCAGACTCCG 1920 	Db 1921 CTTCATCCCCAAGCCTGACGGCTGCGGCCCGATTGTGAACATGGACTACGTCGTGGGGAGC 1980 	Db 1981 CAGAACGTTCCGCAGAAAAAGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGTT 2040	Db 2041 CAGCGTGCTCAACTACGAGCGGGGGGGCCCGGGCTCCTGGGGCGCTTCTGTGCTGGG 2100 	Db 2101 CCTGGACGATATCCACAGGGCCTGGGGCACCTTGGTGCTGCGGGGCCCAGGACCC 2160	Db 2161 GCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGCGCGTACGACATCCCCCA 2220	Db 2221 GGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACACGTACTGCGTGCG	Db 2281 TCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCCTTCAAGAGCCA 2340 	Db 2341 CGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTGCAGGA 2400 	Db 2401 GACCAGCCGCTGAGGGATGCCGTCGTCATCGAGCTCCTCCCTGAATGAGGCCAG 2460	Db 2461 CAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACCGCGCGCATCAGGG 2520	Db 2521 CAAGICCTACGICCAGGGGATCCCGCAGGCTCCATCCTCTCCACGTGCTCTG 2580 	Db 2581 CAGCCTGTGCTACGGCGACATGGAGAACAACCTGTTTGCGGGGATTCGGCGGACGGGCT 2640	Db 2641 GCTCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCACGCGAAAAC 2700 	Db 2701 CTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGTGAACTTGCGGAA 2760 	Db 2761 GACAGTGGTGAACTICCCTGTAGAAGACGAGCCCTGGGTGGCACGGCTTTTGTTCAGAT 2820	Db 2821 GCCGCCCACGCCTAT 2837

쉱

ద

ò g ö g δ g õ 셤 ογ g ö g õ

ò

```
ö
anti-influenza virus hemagglutinin monoclonal antibody 12CA5; similar to part of the Influenza A hemaglutinin gene sequence in GenBank Accession Number M29257"
//organism="synthetic construct"
//db_xref="taxon:32630"
/ 2551 c 2484 g 2038 t 1 others
                                                                                                                                                  1160
                                                                                                                                                                                                 1220
                                                                                                                                                                                                                                                1280
                                                                                                                                                                                                                                                                                               1340
                                                                                                                                                                                                                                                                                                                                               1400
                                                                                                                                                                                                                                                                                                                                                                                             1460
                                                                                                                                                                                                                                                                                                                                                                                                                                              1520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1940
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    440
                                                                                                                                                                                                                        140
                                                                                                                                                                                                                                                                        200
                                                                                                                                                                                                                                                                                                                       260
                                                                                                                                                                                                                                                                                                                                                                      320
                                                                                                                                                                                                                                                                                                                                                                                                                     380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                920
                                                                                                                                                                         80
                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                            GCAGAGGCTGTGCGAGGGGGGGGGAAGAACGTGCTGGCCTTCGGCTTCGCGCTGCTGCTGGAACAGAACGTGCTGGCCTTCGGCTTCGCGCTGCTGGAGAACGTGCTGGCTTCGGCTTCGGCTGCGCTGCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCAGCCACTACCGCGAGGTGCTGCCGCTGGC
                                                                                                                                                                                                                                                                                                                                              CCCCCCCCCCCCTCCCTTCCCCCAGGTGTCCTGCCTGAAGGAGCTGGTGGTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCCCGGGGATGCCGCGCGCTCC
                                                                                                                                                                                                 CCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCCACCTACCGCGAGGTGCTGCCGCTGGC
                                                                                                                                                                                                                                                CACGTTCGTGCGCCCCTGGGCCCCCAGGCTGGCGGTGGTGCAGCGCGGGGACCCGGC
                                                                                                                                                                                                                                                              CGGGGCCCGCGGGGCCCCCCCGAGGCCTTCACCACCAGCGTGCGCAGCTACCTGCCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGACGACGTGCTGGTTCACCTGCTGGCACGCTGCGCGCTCTTTGTGCTGGTGGCTCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGCGCCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCTCGGCGCTGCCACTCAGGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCCCCCCCCACACCCTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGGCCTGGAACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGTGACCGTGGTTTCTGTGTGTGTCACCTGCCAGACCCGCCGAAGAAGACCTCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGAGGGTGCGCTCTCTGGCACGCGCCACTCCCACCCATCCGTGGGCCGCCAGCACCACGC
                                                                                                                                                                                                                                                                                               GGCTTTCCGCGCGCTGGTGGCCCAGTGCCTGGTGCGTGCCCTGGGACGCACGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                      CCCCGCCCCCCCTCCTTCCGCCAGGTGTCCTGCCTGAAGGAGCTGGTGGCCCGAGTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TAGCGTCAGGGAGGCCGGGGGTCCCCCTGGGCCTGCCAGCCCCGGGTGCGAGGAGGCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGGAGCGGACGCCCGTTGGGCAGGGGTCCTGGGCCCACCCGGGCAGGACGCGTGGACC
                                                                                                                          ö
                                                                                                 8960;
                                                                                                                          Indels
                                                                                                   Length
                                                                                               Score 2824; DB 31;
Pred. No. 0.00e+00;
0; Mismatches 2;
                                                                                               99.2%;
.larity 99.9%;
Conservative
                                                                                                              Similarity
                                                              ø
                                                             1886
                                                                                                                          2826;
                                                                                                   Match
                                                                                                              Local
                                                                                                             Best Loca
Matches
                                                              BASE COUNT
ORIGIN
                                                                                                                                                1101
                                                                                                                                                                                               1161
                                                                                                                                                                                                                                              1221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1761
                                                                                                                                                                       21
                                                                                                                                                                                                                                                                                               1281
                                                                                                                                                                                                                                                                                                                                               1341
                                                                                                                                                                                                                                                                                                                                                                                                                                             1461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1941
                                                                                                                                                                                                                      81
                                                                                                                                                                                                                                                                     141
                                                                                                                                                                                                                                                                                                                    201
                                                                                                                                                                                                                                                                                                                                                                     261
                                                                                                                                                                                                                                                                                                                                                                                             1401
                                                                                                                                                                                                                                                                                                                                                                                                                     321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2001
                                                                                                   Query
```

g

ò 셤 ô 셤

õ 윱 ò g ò 셤 ò g

ò

3140 2540 2720 1640 2840 3080 2120 1160 2300 2360 2480 1400 1460 2600 2660 1580 2780 1700 1760 2900 CCGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAAGCTCTCGCT GCAGGAGCTGACGTGGAAGATGAGCGTGCGGGACTGCGCTTGGCTGCGCAGGAGCCCAGG CCGCAGAGAAAAGGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGTTCAGCGTGT GGAGGGTGCGCTCTCTGGCACGCGCCACTCCCACCCATCCGTGGGCCGCCAGCACCACGC GGGCCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTCCCCCGGTGTA CCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGGGCTCGGAGGCTCGTGGAGACCATCTT CGGGGTGCTCCTCAAGACGCACTGCCCGCTGCGAGCTGCGGTCACCCCAGCAGCGGGTGT CTGTGCCCGGGAAAGCCCCCAGGGCTCTGTGGCGGCCCCCGAGGAGGAGGACACAGACCC CCGTCGCCTGGTGCAGCTGCTCCGCCAGCACAGCAGCCCCTGGCAGGTGTACGGCTTCGT GCAGGAGCTGACGTGGAAGATGAGCGTGCGGGGCTGCGCTTGGCTGCGCAGGAGCCCAGG GGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGGCCAAGTTCCT GGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGGCCAAGTTCCT GACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAGTGTCTGGAGCAAGTTGCA GGTCAGGCAGCATCGGGAAGCCAGGCCCGCCCTGCTGACGTCCAGACTCCGCTTCATCCC CTACTGGCAAATGCGGCCCCTGTTCTGGAGCTGCTTGGGAACCACGCGCAGTGCCCCTA 1641 2841 2901 1821 1161 2541 1521 1581 1761 2961 3021 1941 3081 2061 2121 1041 2181 1101 2241 2301 1221 2361 1281 2421 1341 2481 1401 1461 2601 2661 2721 2781 1701 1881 921 981 셤 g 셤 ద 윱 g g g g g 셤 g 셤 ò g à g ò 엄 à 셤 δ à ò à å ò ò õ g ö à ö ò ò ò

Liu,0.,

is

```
/product="felomerase catalytic subunit"
//product="felomerase catalytic subunit"
//db_xref="plb:q2347129"
//translation="MPRAPRCRAVERINESHYREUPLATFVRRIGPOGWRLVORGDP
AAFRALVAOCUCVUVPWDARPPPPAAPSFRQVSCLKEUVARVLQRLGFGAKNVLARGEA
LLDGARGGPPEAFTTSVRSYLDHTWTDALRGSGAWGLLLRRWGDDDVLWHLLARGALFV
LVAPSCATOWGGPPLYQLGAATQARPPHASGPRRIGCERAWNHSVREGGASGRSULGLPA
PGARRGGSASRSLELPENFRRRGABEEBERTPWGGSSWAHPGARRGPSDRGFCVVSPA
RPAREEATSLEGALGATRHSRESVGROHHAGPPSTSRPRPWDTPCRPPYVAETHELYS
SGDKEQLRSPFLILSSLRPSLTGARRLVPPCLWGSSRHWRRFLRRRTRELYG
LLROHHAGCPYGVLLTHFOLTAAATPAAGVCARRKPGGSVAAPEEBTTDRYQUMRPL
FLELLGHHAGCPYGVALLTHCPLRAAYTPAAGVCARRKPGGSVAAPEEBTTDRYQUMRPL
FLELLGHHAGCPYGVALLTHCPLRAAYTPAAGVCARRKPGGSVAAPEEBTTDRYQUMRPL
FLELLGHHAGCPYGVALLTHCPLRAAYTPAAGVCARRKPGGSVAAPEEBTTDRYUGU
LLROHSSPWGVYGTRACLRRLVPPCLWGSRHURRSFLANTKKFF ISLGKHAKLSLGE
TWKMSVRGCAMLRRSPGVGCVPAAEHRLREEILARFLHWLMSVYVVELLRSFFVVTF
TYGKNRLFFYRKSWSRLGSTGOHLKRVOURELSBAEVROHREARPFLLTSRLFF
FYGNRYVYGAAHGHVRARFREKRAERLTSRVKALFSVLMYFRARREARFF
LDDIHRAMTFFVLRYRAQDPPPELLYFVVVDVTGAYDTIPODRLTEVINTGSSSL
NRAASGLEPDVFLRRKHHAVRIRGKSYVGCGILGSTLGCLGASVLG
IRROGLLLARVUDDRLLYTHAAYTLRTLYNGCVPEYGCVVULRKTVVVNFPVEDEAL
GGTARVQMAAHGHFPRVGLLLDTTHAATFLRTLYNGCVPEYGCVVULRKTVVVNFPVEDEAL
GGTARVQMAAHGHFPRVGLLLDTTHAATFLRTLYNGCVPEYGCVVULRKTVVVNFPVEDEAL
GGTARVQMAAHGLFPWGGLLLDTTALERVQSDYSSYARTSIRASUTTRNRYT
FFLRVISDTASLCYSILLARNAGASGARGARGRARGPESEAVOWLCHOAFLKTRHRVT
TVPLLGSLRYAQUPAGLSTLARNAGASGARGARGAPEPSEAVOWLCHOAFLKTRHRVT
TVPLLGSLRYAQUPAGLSTLARNAGASGARGARGARGAPEPSEAVOWLCHOAFLKTRHRVT
TVPLLGSLRYAQUPAGLSTLARNAGASGARGARGAPEPSEAVOWLCHOAFLKTRHRVT
TVPLLGSLRYAQUPAGLSTLARNAGASGARGARGAPEPSEAVOWLCHOAFLKTRHRVT
TVPLLGSLRYAQUPAGLSTLARNAGASGARGARGAPEPSEAVOWLCHOAFLKTRHRVT
TVPLLGSLRYAQUPAGLSTLARNAGAGARGARGARGAPEPSEAVOWLCHOAFLKTRHRVT
TVPLLGSLRYAQUPAGLGARGARGARGAPEPSEAVOWLCHOAFLKTRHRVT
TVPLLGSLRYAQUPAGGARGARGARGAPEPSEAVOWLCHOAFLKTRHRVT
TVPLLGSLRYAQUPAGLTTALLALBAANPALPSERVOWLCHOAFLKTRHRVT
TVPLLGSLRYAGTTATTALTALBAANPALPSERVOWLCHOAFLKTRHRVT
TVPLLGSLRYAGTTATTALTALBAANPALPSERVOWLCHOAFLKTRHRVT
TVPLLTTHATTATTATTALTTALTALBAANPALPSERVOWLCHOAFLTRHRV
                                                                                                           Meyerson, M., Counter, C.M., Eaton, E.N., Ellisen, L.W., Steiner, P., Caddle, S.D., Zlaugra, L., Beljersbergen, R.L., Davidoff, M.J., Liu, Q., Caddle, S.D., Zlaugra, L., Beljersbergen, R.L., Davidoff, M.J., Liu, Q., Bacchetti, S., Haber, D.A. and Weinberg, R.A.
Direct Submission
Submitted (11-AUG-1997) Whitehead Institute for Biomedical Research, Massachusetts Institute of Technology, Nine Cambridge Center, Cambridge, MA 02142, USA
Location/Qualifiers
I. 4027
/ Organism="Homo sapiens"
/ Ab_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     72 CGCTGCCGAGCCGTGCGCTCCTGCTGCGCACCTACCGCGAGGTGCTGCCGCTGGCC 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCCGCCGCCCCTCCTTCCGCCAGGTGTCCTGCCTGAAGGAGCTGGTGGCCCGAGTGCTG 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Caddle, S.D., Zlaugra, L., Beljersbergen, R.L., Davidoff, M.J., I Bacchetti, S., Haber, D.A. and Welnberg, R.A. hEST2, the putative human telomerase catalytic subunit gene, up-regulated in tumor cells and during immortalization cell 90 (4), 785-795 (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 4027;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="member of reverse transcriptase class"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                     1. 4027
/note="human Ever Shorter Telomeres
/gene="hEST2"
57. 3455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 2823; DB 27; L
Pred. No. 0.00e+00;
0; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                 /chromosome="5"
/map="5p15.33"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="hEST2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               atch 99.1%;
cal Similarity 99.9%;
2825; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                 REFERENCE
AUTHORS
                                                                                                                                                                                           TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       142
                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       252
                                                                                             MEDLINE
                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                         FEATURES
                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       쉽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4027 bp mRNA PRI 29-AUG-1997 telomerase catalytic subunit (hEST2) mRNA, complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 (bases 1 to 4027)
Meyerson,M., Counter,C.M., Eaton,E.N., Ellisen,L.W., Steiner,P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                           3320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGCGGGCCCAGGACCCGCCGCTGA 3260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2780
                                                           CTACGCGACATGGAGAACAAGCTGTTTGCGGGGATTCGGCGGGGACGGGCTGCTCCTGCG 3740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGAACTTGCGGAAGACAGTGGT 3860
 CCGCAGAGAAAAGAGGCCCGAGCGTCTCACCTCGAGGTGAAGGCACTGTTCAGCGTGCT 2060
                                                                                                                                                                                                                                                                                                           CGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCCTTCAAGAGCCACGTCTCTAC 3440
                                                                                                                                                                                                                                                                                                                                                                                                                             CTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTGCAGGAGACCAGCCC 3500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTICGACGICTICCIACGCITCAIGIGCCACCACGCGIGCGCAICAGGGGCAAGICCIA 3620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCTCCACGCTGCTGTTGCAGCCTGTG 3680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAACTACGAGCGGGCGCGCCCCGGCCTCCTGGGCGCCTCTGTGCTGGGCCTGGACGA
                                                                                                                                                                                             GCTGTACTTTGTCAAGGTGGATGTGACGGCGCGTACGACACCCATCCCCCAGGACAGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCTGAGGGATGCCGTCGTCATCGAGCAGAGCTCCTCCCTGAATGAGGCCAGCAGTGGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGCCTAT 3928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGGCCTAT 2848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AF018167
g2347128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AF018167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2781
                                                                                                                                                                                                                                                                                                           2241
                                                                                                                                                                                                                                                                                                                                                                                     2301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                       3141
                                                                           2061
                                                                                                               3201
                                                                                                                                                     2121
                                                                                                                                                                                                                               2181
                                                                                                                                                                                                                                                                       3321
                                                                                                                                                                                                                                                                                                                                                 3381
                                                                                                                                                                                                                                                                                                                                                                                                                           3441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                             3261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3921
   2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                         ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     쉽
                                     ద
                                                                                                             ద
                                                                                                                                                     õ
                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
   ç
                                                                           à
                                                                                                                                                                                                                             ŏ
```

ö

Gaps

ö

141 191 201 251 261

81

134	139	140	145	4 1	152	157	158	163	164	169	170	175	176	181	182	187	188	193	194	199	200	205	206	211	212	217	218	223	224	229	230	235	236	241	242
δ	ΩΩ	δ	a :	5 7	a ò	පු	δ	đ	δ	g	Q	g	Qy	g	δy	g	ογ	g	δ	ф	ò	q	QY	g	οy	g	δy	g	δŏ	g	δ	g	Qy	q	ŏ
н	1	81	п	1	91	01	21	٠ • •	7 7		ı <del>-</del>			: 6	1, 10	: 5	٠, -	· -	21				41	Ċ	ס א		ن ز	· -	21 11		- 60	, ,	31 41		אֹכ
- S	IC 37	м (1—	C 43	C 44	Ω — 4	L)	n n	, (				, ,	. ~		- 00	0	0 00	, ,		6	_ m	-			1 - F	_		٠,	2 - E	-	, ,	٠,	1 E		۾ ي —
IIIII STGCT(	TGGA	CTGGA	CCCAA	CCCA	GTGGG	STGGG	CCCAG		CAGGCCGG	ACCA	1111111		999999	4000			11111 11111	Ε.	CTTTC	ပ္	ACGC		GIGIAC			TUUL				٠	CCTAC			0000	11111
CCGAGTC	2	_ [	SCTACCTG		200	ည္သည္ဟ	3GCJ				=5	3	GAGGCGC	) U				ACC	CACC	GCAC	GCACCAC	, ניטי	) — Ö   — Ö   — Ö	5	3=8	טאַט			7 - 0 7 - 0	į.			AGCCG	í	\$ <u></u>
 GTGGCC	rīcec	TCGCGC	AGCTA	AGCTA	TIGGG	턵		1001		36660		טעטטנ	GCGAGGAG			2	100AC	AAGC	SAAGC	3GCC.	1111	0	5-5	0	5051	ACCA.	- C	9000		(0)	5 – 5 5 – 5 5 – 5 5 – 5 5 – 5	(	24-55 	4004	SAGGAC 
SCTG	ວອອວ	CTTCGGCTTC	GCGCAGC	- 25	CIGCIGI		11616	0101		CGAA	11111111111111111111111111111111111111	טטט	1000	1	1000			CGAA	CGAA	0000		ئارى	1 - 5		2 - S	CT C	- C	ָבָּילָ בָּילָבָּילָ בַּילָבָילָבָילָבָילָבָילָבָילָבָילָבָילָב		,	ACCACGCGCAGTG	į	) — Š — Š — Š	מיט איני	1111111
GAAGGAC	GCCTJ	GGCCTJ	CACCAGCGTG	AGCG	11111	999				GGATG	GGATO			ور		0		טטטט	CACCTGCCAGACCCGCGAAGAAGCCACT	TCCGI	CTCTGGCACGCGCCACCCATCCGTGGGCCGCC	ָרָאָרָאָרָאָרָ מישריים	GGGGGCCACCACGTCCCTGGGACACGCTTGTCCCCCG	ָר בְּיִבְּיִבְּיִבְּיִבְּיִבְּיִבְּיִבְּיִ		CGAC			GGATGCCAGGGACTCCCCGCAGGTTGCCCCCCTC	ה היים מיטים	- N	ز	GCGAGCTGCGGTCACCCCAGCA 	2000	ξΞ.
SCCT	- 51	- H	CCACC	CACC	GT =	CGTG	000000		GTACCAGCTC	STCTG	-  -  -  -  -  -  -  -  -  -  -  -  -	קטטיי	GCCA	פאסעט	11111 11111			CAGA	CAGA	ACCCA	ACCCA	0010	5150	ָרָ בְּיִבְּיִבְּיִבְּיִבְּיִבְּיִבְּיִבְּיִ	SCGAC	בטטטנ	1111	1000		THU TO	GCTGCTTG		SAGCT	J	
<u>=</u> 5	AACG	AACGTGC	CTTCAC	TTCA	recegegaacegege	99999	GCTGGTTCACCTGCTGGCACGCT(			AGGC		טטטט	1000	ָמָל טָרָטָרָי מיניטי		, H.O. O. H.		CCTG		TCCC	11000E	) Jacob	1 - 5 1 - 5	) (	TCAG	ACTG	111		ACTO FOTO	יטיפטי	GAGC	) E	2 – 5 2 – 5 2 – 5 2 – 5 2 – 5 2 – 5 3 – 5	Ę,	3-
AGGTGT	· ()	CGAAGAAC	ည္ဟ <u> </u>	- ပ္ပ	GGAGC	GGAGC	TGGC2	10000		45000	1111	מרכיים	CCCTG	CTT	1111	0000	AGGGG	TGTCA	I CICA	SCCAC	SCCAC	80080	CACCA	0	ACTCC	30076			24666	OH-OH-A	TTCTGGAG		1111111 111111111111111111111111111111	LULUE	111111
CCGCCAG	ည	00000	CCCCGAC	5000	50000	9992	STIGOTO I		) — Ü	GGAC	- CON	07019	1-15	J.		j j	0000	GTGG	GIGGIGIC	ACGC	ACGC I	ָרָיָרָיָרָיָרָיִרָּיִרָּיִרָּיִירָּיִרְיִירָּיִרְיִירָּיִרְיִירְיִירְיִירְיִירְיִירְיִירְיִירְ	- 55 - 55 - 55 - 55 - 55 - 55 - 55 - 55	ر ال	1-5	CCCA	- N		ATGC - S	ئاتىل	CCCTGTTTC	1	CAAGACGCACTG	CAGG.	11111
CCTT	ည်	_8 _8 _8	000000000000000000000000000000000000000		GACGCACTG	CACTO	TTCAC		1616 	CTAGI	CTAG	00000	99900	CAAGT	GAAGI	והטטט		TCTGI	CGTGGTTTCTGTG	CTGGC	71660	C Part	CATC	٥	ACTIO	TGAGG	1 - L			טייט	= 8	0000	AGACG	AGCCC	} = =
	F4 -	GTGCGAC	55555	- 6	CGACG	SGACG			3 – 65 - 7 - 69 - 7 - 69 - 7	CACG		GAGG	GAGG	שנינים.	- SS	טטטע:	CGGACGC	GGTT	GGTT	CTCT	HIIIII GCGCTCT	Ą O DE	CCATCCACATC	7544	AAGC	TCTC			CAGGCCCTG	00.4	CAAATGC	4000	يز – ن	ĝ	1111111
00000	CCT	= 55 - 55 - 55	8=	ဦ	88=	ပ္	<u>F</u> , — F	1 5	CCTAC	2000		TCAGG	I I I I I	J.J.		שפטפט	GAGCGG	ACCGI	ACCG1	GIGCG	31600	8000	2000	טאַטאַ	AGACO	rcago	CTACTCAGO		2	- 7	=8	5	3=8	ÿ	
0000	CAGA	CAGAG	200000	9999	ACGGT	ACGG	GACGACG		1676 1676 1676	S		AGCG	AGCG	GGCAC	<b>–</b> 0	ניטיט	= 79 = 29 = 29 = 29	AGTG	AGTGACC	GAGG	GAGGGTG	טטטט	2000000	ָנָיטָרָנָי טַרָּטָרָנָי	GCCGAGACC	CTAC	CTAC		CTGGGTJ	TACT	<u>=</u> 5	ָבָיבָיבָיבָי בייבייביי	19995 11111	E E	5 -
262	312	322	372	382	ന	4	492	, r	າ ທ		622	672	682	732	. 4	792	۰ ٥	52	a	912	922	972		3	1 (1	N	0	1153	, o	1212	1222	1272		1332	2
δλ	đ	οy	qq	δλ	đ	δ	a :	3 2	3 6	q	ô	· A	δŽ	d d	ò	<u>د</u>	)	- අ	δ	qq	δλ	Ę	λŏ	- 4	λŏ	d d	ò	7 2	à	6	λo	י ב	3 8	ď	}

• • •

δy	1342	TGTGCCCGGGAGAAGCCCCAGGGCTCTGTGGCGGCCCCCGAGGAGGAGGACACAGAGCCCC 1401
qq	1392	GTCGCCTGGTGCAGCTGCTCCGCCAGCAGCAGCTGGCAGGTGTACGGCTTCGTG
Qy	1402	CGTCGCCTGGTGCTGCTCCGCCAGCACAGCCCCTGGCAGGGTACGGCTTCGTG 1461
qq	1452	GGGCCTGCCTGCGCGGCTGGTGCCCCCAGGCCTCTGGGGCTCCAGGCACAACGAACG
ογ	1462	GGGCCTGCCTGCGCCGCCTGCTCCCCAGGCCTCTGGGGCTCCAGGCACACACGC 1521
đ	$\vec{+}$	CGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAAGCTCTCGCTG 1571
Oy	1522	GCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAAGCTCTCGCTG
qq	1572	CAGGAGCTGACGTGGAAGATGAGCGTGCGGGCTGCGCTTGGCTGCGCAGGAGCCCCAGG 1631
Qy	1582	AGGAGCTGACGTGGAAGATGAGCGTGCGGGACTGCGTTTGGCTGCGCAGGAGCCCAGGG 164
අ	1632	GTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGGCCAAGTTCCTG 1691
οy	1642	TIGGCIGIGITCCGGCCGCAGAGCACCGTCTGCGTGAGAGATCCTGGCCAAGTTCCTG 170
ą	1692	ACTGGCTGATGAGTGTACGTCGTCGAGCTGCTCAGGTCTTTTTTATGTCACGAG 1
Qy	1702	IGGCTGATGAGTGTGTACGTCGTCGTGCTCAGGTCTTTTTTTATGTCACGGAG 17
đ	1752	ACCACGITICAAAAGAACAGGCICTITITCTACCGGAAGAGIGICIGGAGCAAGTIGCAA 1811
δλ	1762	ACGITICAAAAGAACAGGCICITITICIACCGGAAGAGIGICIGGAGCAAGIIGCAA 1
đ	$\overline{}$	AGCATTGGAATCAGACACCTTGAAGAGGTGCAGCTGCGGGGAGCTGTCGGAAGCAGG 1871
δλ	1822	ATTGGAATCAGACAGCACTTGAAGAGGTGCAGCTGCGGGAGCTGTCGGAAGCAGA 188
qq	1872	GTCAGGCAGCATCGGGAAGCCAGGCCGCCTGCTGACGTCCAGACTCCGCTTCATCCCC 1931
Qy	1882	JAGGCAGCATCGGGAAGCCAGGCCCGCCTGGTGGTCCAGACTCCGCTTCATCCCC 194
අධ	1932	AAGCCIGACGGCCGCCGAIIGIGAACAIGGACIACGICGIGGGAGCCAGAACGIIC 1991
οy	1942	CCTGACGGGCTGCGCCCGATTGTGAACATGGACTACGTCGTGGGGGGCCAGAACGTTC 200
đ	1992	GCAGAGAAAAGGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGTTCAGCGTGCTC 2
Qy	2002	CAGAGAAAAGAGGGCCGAGCGTCTCTCTCTCGAGGGTGAAGGCACTGTTCAGCGTGCTC 20
qa	202	AACTACGAGCGGCGCGCGCCCCCGGCCTCCTGGGCGCCTCTGTGCTGGGCCTGGACGAT 2111
δy	2062	TACGAGCGGCGCGCCCCCGGCCTCTGGGCGCCTCTGTGCTGGGCCTGGACGAT 212
đ	2112	GCCTGAG 2
Qy	2122	PACAGGGCCTGGCGCACCTTCGTGCTGCTGTGCGGGCCCAGGACCCGCCGCCTGAG 218
අ	2172	CIGIACITIGICAAAGGIGGAIGGACGGGCGCGTACGACACCATCCCCCAGGACAGGCIC 2231
Qy	2182	IACTITGICAAGGIGGAIGTAGGACGGGCGGIACGACCATCCCCCAGGACAGGCIC 224
Q O	2232	ACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACACGTACTGCGTGCG
Qy	2242	SAGGICATOGCCAGCATCATCAAACCCCAGAACACGTACTGCGTGCGTG
đ	2292	STCTCTACC 2
QY	2302	TGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCCTTCAAGAGCCACGTCTCTAC
셤	2352	TTGACAGACCICCAGCCGTACATGCGACAGTTCGTGGCTCACCTGCAGGAGACCAGCCCG 2411
Qy	2362	GACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTGCAGGAGACCAGCCCG 242
q	2412	CTGAGGGATGCCGTCATCGAGCAGAGCTCCTCCCTGAATGAGGCCAGCAGGGCTC 2471
δλ	2422	TGAGGGATGCCGTCGTCATCGAGCAGCTCCTTCCCTGAATGAGGCCAGCAGTGGCCT

ر. د

셤

ò

셤 ò 셤 8 용 ò g ò 용 ò

ò

```
NMSYSMGTRALGRRKQAQHFTQRLKTLFSMLNYERTKHPHLMGSSVLGMNDIYRTWRA
PSYLVRYALLOOPPRWIYWADTGAYDHAOGGILVEVVANMIRBESTYCIRQYAVVRR
DSGGOWHKSPRRQYTLSDLQPYMGGPLKHLODSDASALRNSWVIEDSISMEDSSSSL
FDFFLHFLRHSVVKIGDRCYTGCGGIPQGSSLSTLLCSLCFGDMENKLFAEVQRDGLL
LAFVDDFLLYPPHLDQARTESTLYMOFPEYGCALDNINGATVNRFVDEPGTIGGAPYQ
LAFAYDLFLAVPHLDQARTESTLYMOFPEYGCALDNINGATVNRFVDEPGTIGGAPYQ
LAFAHCLLEDDCQVLEVPCDSGSYAQTSIKTSLTPGSYFRAGKTMRNLISVLR
LKCHGLFLDLQVNSLQTVCINIYKIFLLQAYRFHACVIQLPFDQRVRKNLTFFGISIS
SQASCCYALLKWKNPGMYKAAGSFPPEAAHWLCYQAFLKKAAHSVIYKCLLGGPLRT
AQKLLCKRLPBATHTLAAADPALSTDFQTILD"
9779 C
977 G
794 L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 803
                                                                                                                                                                                                                                                                                                                                                133
                                                                                                                                                                                                                                                                                                                                                                                                                  193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     913
                                                                                                                                                                                                                                                                                                            51 cccescacccccccareccececerccccccrcccaaccareceraccrccrccrecre
                                                                                                                                                                                                                                                                            73
                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        674 TCGCCAGGAAGCACCGAAACCCCTGGCCTTGCCATCTCGAGGTACAAAGAGGCATCTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               734 TCTCACCAGTACAAGTGTGCCTTCAGCTAAGAAGGCCAGATGCTATCCTGTCCCGAGAGT
                                                                                                                                                                                                                                                                            14 CCCGGCCTTGAGCACAATGACCCGCGCTCCTCGTTGCCCCGCGGGGCGCTCTCTGCTGCG
                                                                                                                                                                                                                                                                                                                                                CAGCCGATACCGGGAGGTGTGGCCGCTGGCAACCTTTGTGCGGCGCCTGGGGGCCCCGAGGG
                                                                                                                                                                                                                                                                                                                                                                  ATCCCTGAAAGAGCTGGTGGCCAGGGTTGTGCAGAGACTCTGCGAGCGCAACGAGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGCCTGAAGGAGCTGGTGGCCCGAGTGCTGCAGAGGAGCGCGGCGCGGCGAAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGCATGGATGCTACTGTTGAGCCGAGTGGGCGACCAGCTGCTGCTGCTGCTGCTGCACACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  651 GCGTCTGGGATGCG------AACGGGCCTGGAACCATAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAGTGCCAGCGAAGTCTGCCCTTGCCCAAGAGGCCCAGGCGTGGCGTGCCCTGAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGAGCGGACGCCCGTTGGGCAGGGGTCCTGGGCCCACCCGGGCAGGACGCGTGGACCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     854 TCCTGCTCGGTCCCCCGAGGTGCCTACTGCAGAGAAAGATTTGTCTTCTAAAGGAAAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                  CAGGCGCCTTGTGCAACCCGGGGACCCGAAGATCTACCGCACTTTGGTTGCCCAATGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                     194 AGIGIGCATGCACIGGGGCTCACAGCCICCACCIGCCGACCITICCTICCACCAGGIGIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGTGCTGGCTTTTGGCTTTTGAGCTGCTTTAACGAGGCCAGAGGCGGGCCTCCCATGGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CACTAGTAGCGTGCGTACTACTTGCCCAACACTGTTATTGAGACCCTGCGTGTCAGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGTGCTCTTTATCTTCTGGTGCCCCCCCAGCTGTGCCTACCAGGTGTGTGGGTCTCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTACCAAATTTGTGCCACCACGATATCTGGCCCTCTGTGTCCGCTAGTTACAGGCCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGACCCGTGGGCAGGAATTTCACTAACCTTAGGTTCTTACAACAGATCAAGAGCAGTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGAGGAGGGACCCCACAGGCAGGTGCTACCAACCCCCATCAGGCAAATCATGGGTGCCAAG
                                                                                                                                                                                                                                            93;
                                                                                                                                                                                                       Score 825; DB 28; Length 3426;
Pred. No. 0.00e+00;
0; Mismatches 838; Indels 93
                                                                                                                                                                                                       120.0%; 29.0%; similarity 67.1%; 1901; conservative
                                                                                                                                                         746
                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                            Best Local
                                                                                                                                                                                                                                           Matches
                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                              74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 744
                                                                                                                                                                                                                                                                                                                                                                                111
                                                                                                                                                                                                                                                                                                                                                                                                                  134
                                                                                                                                                                                                                                                                                                                                                                                                                                                  171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 194
                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
/product="telomerase reverse transcriptase"
/product="telomerase reverse transcriptase"
/db_xref="pro:g3005592"
/translation="MTRAPRCPAVRSILRSRYEEVWPLATFVRRLGPEGRRLVQPGDP
/translation="MTRAPRCPAVRSILRSRYEEVWPLATFVRRLGPEGRRLVQPGDP
/translation="MTRAPRCPAVRSILRSRYEEVWPLATFVRRLGPEGRENVLARGEE
LINRARGGPEMAFTSSYRSYLDNTVIETLRYSGAWMLLLSRYGDDLLVYLLAHCALYL
LVPPSCAYQVCGSPLYQICATTDHBSVGASTRARFGREPHRQVLPTPSGRSWPPSP
ARSPEVPTAERDLSSKGKVSDLSLSGSVCCKHKPSSTSLLSPPRQNAFOLRPFIETRH
FLYSRGDGORRLNPSFLLRSRYCKRRLVEITERSRYW
QMRPLFQQLLVNHAECQYVRLLRSHCRFRTANQQYTDALNTSPPHLMDLLRLHSSPWQ
VYGFLRACLCKYVSASLUMGTRHNERRFKNLKKFISLGKYGGKLSLQELMWKMKVEDCH
WLRSSPGKDRVPAABHRLRERILATFLFWLMDTYVVQLLRSFFYITESTFQRNRLFFY
RKSVWSKLQSIGVRQHLERVRLREELSQEEVRHHQDTWLAMPICRLRFFY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

Rodentia; Sciurognathi; Muridae; Murinae; Mus.

Greenberg, R.A., Allsopp, R.C., Chin, L., Morin, G.B. and Depinho, R.A.

Expression of mouse telomerase reverse transcriptase during development, differentiation, and proliferation

Oncogene (1998) In press

(bases 1 to 3426)

Greenberg, R.A., Allsopp, R.C., Chin, L., Morin, G.B. and Depinho, R.A.

Submitted (02-MAR-1998) Microbiology and Immunology, Albert
Einstein College of Medicine, 1300 Morris Park Ave., Bronx, NY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cds.
                                                                                                                       2601
                                                                                                                                                       2651
                                                                                                                                                                                                                           2711
                                                                                                                                                                                                                                                           2721
                                                                                                                                                                                                                                                                                            2771
                                                                                                                                                                                                                                                                                                                            2781
                                                                                                                                                                                                                                                                                                                                                              2831
                                                                                                                                                                                                                                                                                                                                                                                                2841
                                                                                     2591
                                                                                                                                                                                       2661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1. .3426
/organism="Mus musculus"
/db_xref="taxon:10090"
/mb_rremosome="13"
/map="MGD offset position 40; 40 cM from centromere"
30. .3398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3426 bp mRNA ROD 02-APR-1998 telomerase reverse transcriptase mRNA, complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       02-APR-1998
                                                                                                                                                                                                                                                                                         AACTICCCTGTAGAAGACGAGGCCTGGGTGGCACGGCTITTGITCAGATGCCGGCCCAC
                 TTCGACGTCTTCCTACGCTTCATGTGCCACGCCGTGCGCATCAGGGGCCAAGTCCTAC
                                                                                                     AACTICCCTGTAGAAGACGAGGCCCTGGGTGGCACGGCTTTTTGTTCAGATGCCGGCCCAC
                                                                                   GTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCTCCACGCTGCTGTGCAGCCTGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
1. .3426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="mTERT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mus musculus t
AF051911
93005591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         house mouse.
Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                GGCCTAT 2838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                2842 GGCCTAT 2848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AF051911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10461,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                         2662
                                                                                                                                                                                                                                                                                                                                                                                              2782
                                                                                                                                                                                                                                                                                                                           2722
                                                                                                                                                                                                                                                                                                                                                              2772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
TITLE
                                                2482
                                                                                 2532
                                                                                                                   2542
                                                                                                                                                     2592
                                                                                                                                                                                     2602
                                                                                                                                                                                                                         2652
                                                                                                                                                                                                                                                                                           2712
                                                                                                                                                                                                                                                                                                                                                                                                                                2832
                 2472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
```

œ

```
셤
                                           g
                                                                             g
                                                                                                            셤
                                                                                                                                               ద
                                                                                                                                                                              g
                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    유
ò
                                                               οy
                                                                                               δy
                                                                                                                               ő
                                                                                                                                                               οy
                                                                                                                                                                                                ò
                                                                                                                                                                                                                                Ω
                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                 οy
                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                        1463
                                                                                                                                                                                                                                                                                                                         1456
                                                                                                                                                                                                                                                                                                                                                          1516
                                                                                                                                        1163
                                                                                                                                                                                                                                                                         1403
                                                                                                                                                                                                                                                                                                                                                                                                                                  983
                      961
                                                                                               CITCITIAAGAACITAAAGAAGITCAICCGITGGGGAAATACGGCAAGCIAICACIGCA
                                                                                                                                                                                                                                                                                                                                                                                                  GCCCAACGGCCTGCGGCCCATTGTGAACATGAGTTATAGCATGGGTACCAGAGCTTTGGG
                                                      CICCACAICICIGCIGICACCACCCCGCCAAAAIGCCITICAGCICAGGCCAITIAITGA
                                                                                                                                                                                                 GETGCTCCTCAAGACGCACTGCCGCTGCGACCTGCGGTCACCCCAGCCGGTGTCTG
                                                                                                                                                                                                                                                                    1344 TGCCCGGGAGAAGCCCCCAGGGCTCTGTGGCGGCCCCCCGAGGAGGAGGACACACAGACCCCCG
                                                                                                                                                                                                                                                                                                                                                                         CTICCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAAGCTCTCGCTGCA
                                                                                                                                                                                                                                                                                                                                                                                          GGAACTGATGTGGAAGATGAAAGTAGAGGATTGCCACTGGCTCCGCAGCAGCCCGGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAGGCATCACCAGGACACCTGGCTAGCCCATCTGCAGACTGCGCTTCATCCCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGACCGTGGTTTCTGTGTGTGTCACCTGCCAGACCGCCGAAGAAGCCACCTCTTTGGA
                                      GGTGCGCTCTCTGGCACGCGCCACTCCCATCCGTGGGCCGCCAGCACCACGCGG
                                                                                                                                                        GGGCTCAAGGCCTAGGACATCAGGACCACTCTGCAGGACACACCGTCTATCGCGTCGATA
                                                                                                                                                                                                                                                         ------GAACACCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                           CIGGCIGATGGACACATACGIGGTACAGCIGCTTAGGICATICTITTACATCACAGAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CACATTCCAGAAGAACAGGCTCTTCTTCTACCGTAAGAGTGTGTGGAGCAAGCTGCAGAG
                     GTCTGACCTGAGTCTCTCTGGG------TCGGTGTGCTGTAAACACAAGCCCAG
                                                                     ACTCAGCAACCTCCAGCCTAACTTGACTGGGGCCAGGAGACTGGTGGAGATCATCTTTCT
                                                                                                                                                                                       CTGGCAGATGCGGCCCCTGTTCCAACAGCTGCTGGTGAACCATGCAGAGTGCCAATATGT
                                                                                                                                                                                                                        CAGACTCCTCAGGTCACATTGCAGGTTTCGAACAGCAAACCAACAGGTGACAGATGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                           GGACCGTGTCCCCGGCTGCAGACACCGTCTGAGGGAGAGGATCCTGGCTACGTTCCTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CATTGGAGTCAGGCAACACCTTGAGAGAGTGCGGCTACGGGAGCTGTCACAAGAGGAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GACCAGACATTTCCTTTACTCCAGGGGAGATGGCCAAGAGCGTCTAAAACCCCTCATTCCT
                                                                                      1022
                                                                                                      1044
                                                                                                                                      1104
                                                                                                                                                       1142
                                                                                                                                                                      1164
                                                                                                                                                                                                                       1262
                                                                                                                                                                                                                                                                                        1337
                                                                                                                                                                                                                                                                                                        1404
                                                                                                                                                                                                                                                                                                                                                                         1524
                                                                                                                                                                                                                                                                                                                                                                                                         1584
                                                                                                                                                                                                                                                                                                                                                                                                                          1577
                                     924
                                                                     984
                                                                                                                       1082
                                                                                                                                                                                       1202
                                                                                                                                                                                                       1224
                                                                                                                                                                                                                                       1284
                                                                                                                                                                                                                                                       1322
                                                                                                                                                                                                                                                                                                                                       1464
                                                                                                                                                                                                                                                                                                                                                        1457
                                                                                                                                                                                                                                                                                                                                                                                         1517
                                                                                                                                                                                                                                                                                                                                                                                                                                                          1637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1884
      864
                      914
                                                       962
                                                                                                                                                                                                                                                                                                                        1397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1877
                                                                                                                    g
                                                                                                                                      ò
                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          요
      å
                     셤
                                      à
                                                     음
                                                                     ò
                                                                                  8
                                                                                                 õ
                                                                                                                                                                    δ
                                                                                                                                                                                      용
                                                                                                                                                                                                       ò
                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                       요
                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
```

```
2596
                                                                                                                                                                                                                                                                                                                          2356
                                                                         2056
                                                                                                                                                  2183
                                                                                                                                                                                                                                                 2300
                                                                                                                                                                                                                                                                          2296
                                                                                                                                                                                                                                                                                                  2360
                                                                                                                                                                                                                                                                                                                                                  2414
                                                                                                                                                                                                                                                                                                                                                                                                                           2476
                                                                                                                                                                                                                                                                                                                                                                                                                                                   2534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2776
1944 GCCTGACGGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGGAGCCAGAACGTTCCG 2003
                                                                                                                                                                                                                                                                                                                                                                                                   2474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3369 bp mRNA ROD 09-SEP-1998 telomerase catalytic subunit mRNA, complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              house mouse.
Mus musculus
Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                        CAGAAGGAAGCAGCCCAGCATTTCACCCAGCGTCTCAAGACTCTCTCAGCATGCTCAA
                                                                        CTACAGGACCTGGCGGCCTTTGTGCTGCGTGTGCGTGCTCTGGACCAGGACT
                                                                                                                                     GTACTITIGITAAGGCAGATGTGACCGGGGCCTATGATGCCATCCCCCAGGGTAAGCTGGT
                                                                                                                                                                                                                                       AGTGGTCCGGAGAGATAGCCAAGGCCAAGTCCACAAGTCCTTTAGGAGACAGGTCACCAC
                                                                                                                                                                                                                                                                                                 2301 CGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCCTTCAAGAGCCACGTCTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCTGTGTTTCGGAGACATGGAGAACAAGCTGTTTGCTGAGGTGCAGGGGATGGGTTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITACGITITGITGATGACTITCTGITGGTGACGCCTCACITGGACCAAGCAAAAACCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCTGCGTTTGGTGATGATTTCTTGTTGGTGACACCTCACCCTCACCCACGCGAAAACCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGTGGTGAACTTCCCTGTGGAGCCTGGTACCCTGGGTGGTGCAGCTCCATACCAGCTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2775 AGIGGIGAACIICCCIGIAGAAGACGAGGCCCIGGGIGGCACGGCIITIGIICAGAIGCC
                                                                                                                                                                                                                          GGAGGTIGITGCCAATATGATCAGGCACTCGGAGAGCACGTACTGTATCCGCCAGTATGC
                                                                                                                                                                                                                                                                                                                                                                           CAGCCTGTTTGACTTCTTCCTGCACTTCCTGCGTCACAGTGTCGTAAAGATTGGTGACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGCTATACGCAGTGCCAGGGCATCCCCCAGGGCTCCAGCCTATCCACCCTGCTCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AF073311
Mus musculus t
AF073311
g3551846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCCCACGGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2777 IGCICACIGCCI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
NID
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                   2415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2715
                                                 2004
                                                                        1997
                                                                                                2064
                                                                                                                        2057
                                                                                                                                                2124
                                                                                                                                                                         2117
                                                                                                                                                                                                 2184
                                                                                                                                                                                                                          2177
                                                                                                                                                                                                                                                 2244
                                                                                                                                                                                                                                                                          2237
                                                                                                                                                                                                                                                                                                                                                 2361
                                                                                                                                                                                                                                                                                                                                                                           2357
                                                                                                                                                                                                                                                                                                                                                                                                                           2417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2717
                        1937
                                                                                                                                                                                                                                                                                                                           2297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
```

σ

```
/product="telomerase catalytic subunit"

/db_xref="Plomerase catalytic subunit"

/db_xref="Plomerase catalytic subunit"

/db_xref="Plomerase catalytic subunit"

/db_xref="Plomerase catalytic subunit"

/translation="wraaprePavysicReby catalytycenverLebrernviaeGeF

LinearGGPPMacFOSSVRSYLENRYVIETLRYVGGAWALLISRVGDDLLYVILABGCALYL

LINEARGGPPMAFTSSVRSYLENRYVIETLRYVGGAWALLISRVGDLLYVILABGCALYL

LIVEPSCATOWGGSPLYQICATTDIMPSVSASYRPTRPVGRNFTNLRFLQQIKSSRQE

ARSPEVPHAENDLSSKGKVSDLSLGSGVCCKHKPSSTSLLSPRRQNAFOLPFSGKSWVPSP

ARSPEVPHAENDLSSKGKVSDLSLGSGVCCKHKPSSTSLLSPRRQNAFOLFRIESRRW

OMRPLFQOLLVNHAECQYVRLLRSHCRFRTANQQYDDALNTSPPLLMDLLRLHSSRWQ

VGGTLRACLCKVSASLWGTRHNBRRFFRNIKKFISLGKRYGRLSLQPLAWKKVEDCH

WLRSSPGKDRVPAAEHRLRERILATLFLWLMDTYVVQLLRSPFYITGSTGKNRLFFY

RKSWWSKLQSIGWRQHLERYRRLESGGEFVHHQDDWLAMPICRLRFTPRPROLLPTUR

FVLRYWSKLQSIGWRQHLERYRLESGGEFVHHQDDWLAMPICRLRFTPRPROLLPTUR

FVLRYWRALQGIGWRQHTLSRATORIPGGKLVEVVNMIRHSESSTYCIRQYRAVRR

BOGQYVKSFRRQYTLLSDLQPYRGGFLKHCDSDASALRNSVVIEGSISMESSSSL

FDFFLHFIRHSVVKIGDRCYTGCGGIPQGSSLSTLLCSLCFGDMENKLFFEVRDRDGLL

FFFLHFIRHSVVKIGDRCYTGCGGIPQGSSLSTLLCSLCFGDMENKLFFEVRDRDGLL

FFFLHFIRHSVVKIGDRCYTGCGGIPQGSSLSTLLCSLCFGDMENKLFFEVRDRDGLLL

FFFLHFIRHSVVKIGDRCYTGCGGIPQGSSLSTLLCSLCFGDMENKLFFEVRDRDGLLL

FFFLHFIRHSVVKIGDRCYTGCGGIPQGSSLSTLLCSLCFGDMENKLFFEVRDRDGLLL

FFFLHFIRHSVVKIGDRCYTGCGGIPQGSSLSTLLCSLCFGDMENKLFFFF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LPAHCLFPWCGLLLDTQTLEVFCDYSGYAQTSIKTSLTFQSVFKAGKTMRNKLLSVLR
KRCHGLFLDQVNSLQTVCTNIXTKTELDAYRRHACYTQLPFDQRVRKNLTFFLGIIS
SQASCCYAILKVKNRGHTLKASGSFPPEAAHHLCYQAFLLKLAAHSVIYKCLLGFLRT
AQKLLCRKLPEATWTILKAAADPALSTDFQTILD"
                                                                                                                                                                           of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LRFVDDFLLVTPHLDQAKTFLSTLVHGVPEYGCMINLQKTVVNFPVEPGTLGGAAPYQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5,
                                                                                                                                                                           National Centre
                                         and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
1 (bases 1 to 3369)
Martin-Rivera, L., Herrera, E., Albar, J.P. and Blasco, M.A.
Expression of mouse telomerase catalytic subunit in embryos
adult tissues
Proc. Natl. Acad. Sci. U.S.A. 95 (18), 10471-10476 (1998)
98393668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCTCACAGCCTCCACCTGCCGACCTTTCCTTCCACCAGGTGTCATCCCTGAAAGAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTGGCCAGGGTTGTGCAGAGACTCTGCGAGCGCAACGAGAAACGTGCTGGCTTTTTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 823; DB 28; Length 3369;
Pred. No. 0.00e+00;
0; Mismatches 831; Indels 93
                                                                                                           Martin-Rivera, L., Herrera, E. and Blasco, M.A.
Direct Submission
Submitted (19-JUN-1998) Immunology and Oncology, Nat
Biotechnology, Cantoblanco, Madrid 28049, Spain
Location/Qualifiers
1. 3369
/db_xref="taxon:10090"
1. 3369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         782 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         891 g
                                                                                                                                                                                                                                                                                                             /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28.9%;
larity 67.2%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           υ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches 1892;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local (
                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
ORIGIN
 REFERENCE
AUTHORS
                                                                         JOURNAL
MEDLINE
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                               FEATURES
                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
```

```
1008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1000 CGGCCACCACGTCCCTGGGACACGCCTTGTCCCCCGGTGTACGCCGAGACCAAGCACTTC 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1189 CTGTTCCAACAGCTGCTGGTGAACCATGCAGAGTGCCAATATGTCAGACTCCTCAGGTCA 1248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1384 GIGGIGICIGCIAGICICIGGGGIACCAGGCACAAIGAGCGCCGCTICITIAAGAACITA 1443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       480
                                                                                                                                                                 099
                                                                                                                                                                                                                                                                                                                                   840
                                                                                                                                                                                                                                                                                                                                                                                          900
                                                                                                                                                                                                                                                                                                                                                                                                                      939
                                                                                                                                                                                                                                                                                                                                                                                                                                                 948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           666
                                                      540
                                                                               909
                                                                                                           900
                                                                                                                                       664
                                                                                                                                                                                                                       720
                                                                                                                                                                                                                                                  759
                                                                                                                                                                                                                                                                             721 GIGCCTICAGCIAAGAAGGCCAGAIGCIAICCIGICCCGAGAGIGGAGGAGGAGCCCCAC 780
                                                                                                                                                                                                                                                                                                                                                             879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     949 TCACCACCCCCCCAAAATGCCTTTCAGCTCAGGCCATTTATTGAGACCAGACATTTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              541 ACCACGGATATCTGGCCCTCTGTGTCCGCTAGTTACAGGCCCACCCGACCCGTGGGCAGG
                                                                                                                          781 AGGCAGGIGCIACCAACCCCAICAGGCAAATCAIGGGIGCCAAGICCIGCICGGICCCCC
                                                                                                                                                                                                                                                                                                                                                                                          841 GAGGTGCCTACTGCAGAAAGATTTGTCTTCTAAAGGAAAGGTGTCTGACCTGAGTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                 901 TCTGGG-----TCGGTGTGCTGTAAACACAAGCCCAGCTCCACATCTCTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           940 ACGCGCCACTCCCACCCATCCGTGGGCCGCCACCACGCGGGGCCCCCCATCCACATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1120 CCCAGCCTGACTGGGGGCTCGGAGGCTCGTGGAGACCATCTTTCTGGGTTCCAGGCCCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1300 CACTGCCCGCTGCGAGCTGCGGTCACCCCAGCAGCCGGTGTCTGTGCCCGGGAGAAGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----GAACACCACCGCCACCGCCACCTCATGGATTTG
TTGAGCCGAGTGGGCGACGACCTGCTGGTCTACCTGCTGGGCACACTGTGCTCTTTATCTT
                        601 AATTTCACTAACCTTAGGTTCTTACAACAGATCAAGAGCAGTAGTCGCCAGGAAGCACCG
                                                                                                                                                                                            ------AACGGCCTGGAACCATAGCGTCAGGGCCGG
                                                                                                                                                                                                                                     820 GGGCAGGGGTCCTGGGCCCACCCGGCAGGACGCGTGGACCGAGTGACCGTGGTTTCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                      880 GTGGTGTCACCTGCCAGACCCGCCGAAGAAGCCACCTCTTTGGAGGGTGCGCTCTCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1009 TACTCCAGGGGAGATGGCCAAGAGCGTCTAAACCCCTCATTCCTACTCAGCAACCTCCAG
                                                                                                                                                                                                                       661 AAACCCCTGGCCTTGCCATCTCGAGGTACAAAGAGGCATCTGAGTCTCACCAGTACAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1069 CCTAACTTGACTGGGGCCAGGAGACTGGTGGAGATCATCTTTCTGGGCTCAAGGCCTAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1129 ACATCAGGACCACTCTGCAGGACACACGTCTATCGCGTCGATACTGGCAGATGCGGCCC
                                                    CTGGTGCCCCCCAGCTGTGCCTACCAGGTGTGTGGGTCTCCCCCTGTACCAAATTTGTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1249 CATTGCAGGTTTCGAACAGCAAACCAACAGGTGACAGATGCCTT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1293
                                                                               547
421
                                                    481
                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                  g
                                                                                                         g
                                                                                                                                                            g
                                                                                                                                                                                          ò
                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                        ò
                                                                              ò
                                                                                                                                      ò
                                                                                                                                                                                                                                                ò
```

	RESULT 6 LOCUS LOCUS LOCUS LOCUS DEFINITION MUS MUSCULUS telomers ACCESSION 92605902 REYMORDS SOURCE ORGANISM MUS MUSCULUS EURATYOTAGE; MC4EZCOS; ROGENTIA; SCIUTOGRAEL) REFERENCE 1 (Dases 1 to 201) AUTHORS Drissi, R. and Clevelight Companies of the control of t	JOURNAL Unpublished REFERENCE 2 (bases 1 to 201) AUTHORS Drissl, R. and Clevel TITLE Direct Submission JOURNAL Submitted (07-027-19) FEATURES Location/Qua source 1201 //db_xref="tt" CDS (1>201 //cell_line="tt" CDS (1>201 //cell_line="tt" //cell_line="tt" //cell_line="tt" //cell_line="tt" //cell_line="tt" //cell_line="tt" //cell_line="tt" //codon_star'	/product="t, /db_xref="t, /db_x	Db 1 TTCTTTATGTCACGGACAGCAC	1864 181 1924 SULT	1 LOCUS 166494 /218 DP
1444   AAGAAGTTCATCTCGTTGGGGAATACGGCAAGCTATCACTGCAGGAACTGGAGG 1503		1924 2020 1984 2080 2084 2140		QY         2317 GCCCATGGGCACGTCCCAAGGCCTCCAAGGCCACGTCTCAACCTTGACAGACCTCAGGGGC         2376           Db         2284 CCATACATGGGCCAGTTCCTTAAGCATCTGCAGGAAC         2343           I	2404 2491 2464 2551 2554	224 RIGGROPACERGOCIGIIIGCIGAGGGGCGGGGAIGGGIIGCIIIIACGIIIIIGCIIGC
			·· • • • •		·· • - • -	٥

telomerase catalytic subunit" |PID:92605903" |com="FFYVTESTFQKNRLFFYRKSVWSKLQSIGVRQHLERVRLRELSQ |ALAMPICRLRFIPK" 997) Biochemistry, St jude Children's Research 1 Lauderdale, Memphis, TN 38105, USA Nualifiers ô CACTIGGACCAAGCAAAACCITCCICAGCACCTGGIC 2643 ACATICCAGAAGAACAGGCICITCITCIACCGIAAGAGT 60 AGGCATCACCAGGACACCTGGCTAGCCATGCCCATCTGC 180 1: Chordata; Vertebrata; Mammalia; Eutheria; thi; Muridae; Murinae; Mus. sland,J.L.
Mus musculus telomerase catalytic subunit pp mRNA ROD 12-NOV-1997 srase catalytic subunit mRNA, partial cds. 23-DEC-1997 0; Gaps GGTGCAGCTCCATACCAGCTGCTGCTCACTGCCT 2759 Score 129; DB 28; Length 201; Pred. No. 1.63e-71; 0; Mismatches 36; Indels ( PAT 41 t "taxon:10090" e="32D.3" land, J.L. DNA 1944 201 ď

```
AC005369 74371 bp DNA PRI 01-AUG-1998
Homo sapiens chromosome 5, BAC clone 119j3 (LBNL H175), complete
                           2079 CCGCGCCCGCTCGTAGTTGAGCACGCTGAACAGTGCCTTCACCCTCCGAGGTGAGACGCTC 2020
                                                                                        2019 GGCCCTCTTTTCTCTGCGGAACGTTCTGGCTCCCACGACGTAGTCCATGTTCACATCGG 1960
                                                                                                                                                                                                                          1899 TICCCGAIGCTGCCTGACCTCTGCTTCCGACAGCTCCCGCAGCTGCACCCTCTTCAAGIG 1840
                                                                   1 (bases 1 to 74371)
Kimmerly,W., Bondoc,M., Cheng,J., Connolly,K.S., Gunning,K.M.,
Kadner,K., Miquel,T., Miller,C., Pitluck,S., Pollard,M.,
Rojeski,H., Subreamanian,S. and Martin,C.H.
Sequencing of human chromosome 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ricke.D.O.
Large Scale Sequence Analysis and Annotation with the Sequence
Comparison Analysis (SCAN) System
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unpublished

(Connolly, K.S., Gunning, K.M., Cheng, J., Connolly, K.S., Gunning, K.M., Bordes, K.M., Miguel, T., Pitluck, S., Pollard, M., Rojeski, H., Subramanian, S. and Martin, C.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (01-M0G-1998) Human Genome Center, DOE Joint Genome Institute, Lawrence Berkeley National Laboratory, MS 74-157, Berkeley, CA 94720, U.S.A. Sequence submitted by:

DOE Joint Genome Institute.

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /rpt_unit=GT
join(3246. .3410,3721. .3828)
/standard_name="RLF"
/note="65% & 69% protein identity GenPept:U22377"
                                                                                                                                                                                                                                                         1839 CIGICIGATICCCAAIGCTITIGCAACTIGCICCAGACACICITCCGGTAGAAA 1787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1. 74371
/organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                893. .1030
/rpt_family-"Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "note="LBNL H175"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2295. .2438
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /chromosome="5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone="119j3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2818. .2859
/note="(GT)21"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to 74371)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3431. .3724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /map="5q"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished
                                                                                                                                                                                                                                                                                                                                                                                   sequence.
AC005369
g3367505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                               human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                     σ
                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sonrce
                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                          Сp
                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                    981 GGGCCCCCATCCACATCGCGCCACCACCACGTGGACACGCCTTGTCCCCCGGTGTA 1040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1221 CTACTGGCAAATGCGGCCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCAGTGCCCCTA 1280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1041 CGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCGGGCCCTCCTT 1100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGGAGACCATCTT 1160
                                                                                                                                                                                                                                                                                                                                 0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         23-DEC-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;
0
                                                                                                                                                                                                                                                                    Length 7218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 21; Length 7218
                                                                                                                                                                                                                                                                    Score 67; DB 21; Length 7218
Pred. No. 1.13e-25;
211; Mismatches 153; Indels
                                                                                                                                                                                                                         368 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              368 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 49; DB 21; Length 721
Pred. No. 1.72e-13;
165; Mismatches 122; Indels
                                                                                                             1 (bases 1 to 7218)
Dorner,F., Scheiflinger,F. and Falkner,F.Gunter.
Recombinant fowlpox virus
Patent: US 5670367-A 14 23-SEP-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 (bases 1 to 7218)
Dorner,F., Scheifilinger,F. and Falkner,F.Gunter.
Recombinant fowlpox virus
Patent: US 5670367-A 14 23-SEP-1997;
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PAT
                                                                                                                                                                                                                          1929 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1929 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /218 bp DNA
Sequence 14 from patent US 5670367.
166494
92724471
Sequence 14 from patent US 5670367
166494
                                                                                                                                                                                                      /organism="unknown"
1491 c 1486 g
                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="unknown"
1491 c 1486 g
                                                                                                                                                                                                                                                                    2.4%;
llarity 2.4%;
Conservative 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1.7%;
similarity 2.0%;
6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1415 YYYYYYYYYY 1427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1281 CGGGGTGCTCCTC 1293
                                                                                   Jnknown.
Jnclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Jnclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 6; Conser
                                                                                                                                                                                                                                                                                    Best Local Similarity
                                                                                                                                                                                                                         1944 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1944 a
                                   92724471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Jnknown.
                                                                   Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unknown
                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                             source
      DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
                                                                                  ORGANISM
                                                                                                                                                                                                                         BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                               REFERENCE
                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                  SOURCE
                                                                                                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ġ
                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
```

```
/rpt_family="Alu"
complement(7830. .8185)
/standard_name="possible repeat"
8258. .8503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tandard_name="possible repeat"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(16675. .16977)
/rpt_family="Alu"
complement(16993. .17085)
/rpt_family="MER42"
complement(17678. .18276)
/rpt_family="Alu"
19305. .19583
                                                                                                                                                                                                                                                                                        /rpt_family="Alu"
complement(9740. .9845)
/rpt_family="WER42"
complement(10440. .11015)
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /rpt_family="L1"
14175. .14470
/rpt_family="Alu"
complement(14906. .15259)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               rpt_unit-GTTT
complement(19943. .20222)
rpt_family="Alu"
11202. .21496
                                                                    4366. .4661

/rpt_family="Alu"

537. 5602

/rpt_family="Alu"

6586. 6956

/rpt_family="L1"

6647. .6684

/note="(CA)19"
                                                                                                                                                                                                                                                                                                                                                                                                                                               /rpt_type=tandem
/rpt_unit=A
12365. 12645
/rpt_family="Alu"
13727. 13750
/note="(AC)12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15300. .15613
/rpt_family="Alu"
16671. .16690
/note="(T)20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /rpt_family="Alu"
2136. 22035
/rpt_family="Alu"
22017. .2038
/rote="K7)2"
/rpt_type=tandem
/rpt_unit=A
/rpt_family="Alu"
3707. .3728
/note="(A)22"
/rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /rpt_family="Alu"
19914. .19945
                                                                                                                                                                                                                                                                                                                                                                                                  'rpt_family="Alu"
2057. .12085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /rpt_type=tandem
/rpt_unit=AC
13783. .14024
                                                                                                                                                                                                                                                                                       rpt_family="Alu"
070. .9387
                                                                                                                                                                                     rpt_type=tandem
rpt_unit=CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ууда. .19945
note="(GTTT)8"
rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                    2057. .12085
note="(A)29"
                                                  /rpt_unit=A
              repeat_region
                                                                       repeat_region
                                                                                                   repeat_region
                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                          repeat_region
                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
```

```
/note="GRAIL 2 excellent exon, frame 0" complement (join(38063 . 3818), 3846 2 . 38578, 38741. .38995, complement (join(38063 . 3818), 3846 2 . 38578, 38771. .39205, 39532 . 39630, 39395 . 40061, 41868 . 41972, 42103 . 42225, 42492 . 42569, 44379 . 44507) . 44507) . 44507) . 44507) . 44507) . 44507) . 44507) . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46507 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 . 46607 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /rpt_family="Alu"
join(29485. .29559, 29598. .29779)
//mote="9484".identity dbsTs:G14522 (SHGC-11312)"
29495. .29976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           73388. 73248

/rpt_family="MLT1"
32977. 33088
/rpt_family="MLT1"
32977. 33088
/rpt_family="MLT1"
complement(33670. 33785)
/rpt_family="MLT1"
complement(34021. 34144)
/rote="GRAIL 2 excellent exon, frame 2"
complement(3528. 35331)
/rote="GRAIL 2 excellent exon, frame 1"
/rote="GRAIL 2 excellent exon, frame 2"
/rote="GRAIL 2 excellent exon, frame 1"
/rote="GRAIL 2 e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /standard_name="A1027942"
/note="100% identity EST ov84a10.x1"
complement(30401. 30536)
/note="GRAIL 2 excellent exon, frame 2"
complement(3082. 30733)
/rpt_family="MIR"
complement(31573. 31724)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28712. .28930
/rpt_family="MER20"
-complement(28769. .28838)
/note="GRAIL 2 excellent exon, frame 0"
28987. .29214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'note-"GRAIL 2 excellent exon, frame 1"
complement(32159. .32232)
'note-"GRAIL 2 excellent exon, frame 2"
32388. .32488
                                        /rpt_family="Alu"
complement(22638. .22981)
/standard_name="possible repeat"
23022. .2336
/rpt_family="Alu"
23473. .23761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement(24639. .24694)
/rpt_family="MER42"
complement(25349. .25713)
/rpt_family="Alu"
complement(25727. .26471)
                                                                                                                                                                                                                                                                                       23473. .23761

"rpt_family="Alu"

23744. .23767

/note="(A)24"

/rpt_type=tandem

/rpt_unit=A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /rpt_family="Alu"
27191 .27477
27191 .27477
27774 .28057
/rpt_family="Alu"
28040. .28066
/note="(Alu"
/rpt_type=tandem
//rpt_type=tandem
repeat_region
                                                                                                     repeat_region
                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SIS
```

```
misc_feature
                                                                                                                                                                                                                                                                                                                                                     12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
 BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                                                                           8
                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                            Db 15955 CKSSKCWCWSYRMRMKCYSCSYCYCSSGKKYWCRCSMYWYTCYYSYKYYWSMSYCTCTSW 16014
                                                                                                                                                                                                                                                                                                                                                                                          Unclassified.

1 (bases 1 to 215)

Bennett,A., Labaritch,J.M., Powell,A. and Stotz,H.
Plant inhibitors of fungal polygalacturonases and their use to control fungal disease
Patent: US 5569830-A 5 29-OCT-1996,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 (bases 1 to 215)
Bennett,A., Labavitch,J.M., Powell,A. and Stotz,H.
Plant inhibitors of fungal polygalacturonases and their use to control fungal disease
Patent: US 5569830-A 5 29-OCT-1996;
                                                                                                                                                               190 GGGGACCCGGCGGGTTTCCGCGCGGTGGTGGCCTGGTGCCTGGGAC 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               83 HINVSGADSKIVIDSYNASGISSSNGGIDGNRSGADSYGSSKIAMTSRNRIGKIANNAVD 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      143 SRNWGDASVGSDKNTKKHAKNSADGKVGSKNNGDRNNRYGTGTKSNVSNNCGGGNKRDVS 202
                                                                                                                                                                                                                                                                                          30-0CT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        30-OCT-1996
                                                                                                                    Gaps
                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                      Length 74371;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 34; DB 21; Length 215;
Pred. No. 2.75e-04;
56; Mismatches 59; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            141 others
                                                                                                                 50; Mismatches 25; Indels
complement(38069. .38215)
/note="GRAIL 2 excellent exon, frame 0"
complement(38462. .38578)
                                                                                                                                                                                                                                                                                           PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PAT
                                                                                    Score 37; DB 26; 1 Pred. No. 5.03e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              26 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .....6 215 bp DNA
Sequence 5 from patent US 5569830.
128278
g1819054
                                                                                                                                                                                                                                                                                       128278 215 bp DNA
Sequence 5 from patent US 5569830.
128278
91819054
                                                                                                                                                                                                    Db 16015 GWRWMWSKGRSWMYASRSGCSCSCSMC 16041
                                                                                                                                                                                                                    607 GCCACTCAGGCCCGGCCCCGCCAC 633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism-"unknown"
                                                   Note: remainder of annotations omitted.
                                                                                    Query Match 1.3%;
Best Local Similarity 13.8%;
Matches 12; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 1.2%;
Best Local Similarity 12.9%;
Matches 17; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              203 SYANNKCCGSSC 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ::| :||::|
250 GCACGCCGCCC 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Unknown.
Unclassified.
                                                                                                                                                                                                                                                                                                                                                                 Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Unknown.
                                                                                                                                                                                                                                                                                                                                                                                Unknown
 misc_feature
                            misc_feature
                                                                                                                                                                                                                                                                           10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                         ò
                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AC005369 74371 bp DNA PRI 01-AUG-1998
Homo sapiens chromosome 5, BAC clone 119j3 (LBNL H175), complete
                                                                                                                                                                                                                                                           126 AMTSRNRTGKTANNAVDSRNMGDASVGSDKNTKKHAKNSADGKVGSKNNGDRNNRYGTGT 185
                                                                                                                                                                                                                                66 YNYGGNNVGAAKTHYYTHTNVSGADSKTVTDSYNASGTSSSNGGTDGNRSGADSYGSSKT 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 74371)
Kimmerly,W., Bondoc,M., Cheng,J., Connolly,K.S., Gunning,K.M., Radner,K., Miguel,T., Miller,C., Pitluck,S., Pollard,M., Sedyeski,H., Subrammanian,S. and Martin,C.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Large Scale Sequence Analysis and Annotation with the Sequence Comparison Analysis (SCAN) System
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Unpublished

(bases 1 to 74371)

Kimmerly, W., Bondoc, M., Cheng, J., Connolly, K.S., Gunning, K.M.,

Bobavis, C.A., Kadher, K., Miguel, T., Pitluck, S., Pollard, M.,

Rojeski, H., Subramanian, S. and Martin, C.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nojeznin...

Direct Submission

Direct Submission

Submitted (01-MUG-1998) Human Genome Center, DOE Joint Genome

Institute, Lawrence Berkeley National Laboratory, MS 74-157,

Berkeley, CA 94720, U.S.A.

Sequence submitted by:

DOE Joint Genome Institute.

Location/Qualifiers
                                                                                                                                               6 MSSSSVVSRTASCNDKAKKDGNTTSSWTTDCCNRTWGVCDTDTTYRVNNDSGHNKYSSAN 65
                                                                                                       Gaps
                                                                                                       ö
  141 others
                                                               Length 215;
                                                           Score 35; DB 21; Length 215,
Pred. No. 7.37e-05;
76; Mismatches 95; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2818. .2859
/note="(GT)21"
/rpt_type=tandem
/rpt_unit=GT
join(3246. .3410,3721. .3828)
  ų
  56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Homo sapiens"
/db_xref="taxon:9606"
    ь
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /rpt_family="Alu"
2295. .2438
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'note="LBNL H175"
  25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /chromosome="5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /clone="119;3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 (bases 1 to 74371)
Ricke, D.O.
                                                                                                                                                                                                                                                                                                                                                                                                                                1435 TGCTGTGCTGGCGGAGC 1419
                                                           Query Match 1.2%;
Best Local Similarity 13.2%;
Matches 26; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                    186 KSNVSNNCGGGNKRDVS 202
ပ
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sequence.
AC005369
g3367505
  ๙
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AC005369
12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
```

```
/rpt_type=tandem
                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                repeat_region
                                        repeat_region
                                                                  repeat_region
                                                                                                                       repeat_region
                                                                                                                                                  repeat_region
                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STS
           note="65% & 69% protein identity GenPept:U22377"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /rpt_family="L1"
14175. .14470
complement(14906. .15259)
/standard_name="possible repeat"
15300. .15613
                                                                                                                                                                                                                                                                      complement(7830. .8185)
standard_name="possible repeat"
258. .8503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /rpt_family="Alu"
19914. 19945
/note="(GTT)8"
/rpt_type=tandem
/rpt_unit=GTT)
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                 /rpt_family="Alu"
complement(9740. .9845)
/rpt_family="MER42"
complement(10440. .11015)
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /rpt_family-malu"
16671 .16690
//note='(1)20"
//rpt_type-tandem
//rpt_unit=T
complement(16675 .16977)
//rpt_family-malu"
//rpt_family-malu"
//rpt_family-malu"
//rpt_family-malu"
//rpt_family-malu"
/standard_name="RLF"
                                   /rpt_family="Alu"
3707. .3728
/note="(A)22"
                                                                                                       4366. .4661
/rpt_family="Alu"
5327. .5678
/rpt_family="Alu"
6586. .6956
/rpt_family="L1"
                                                                                                                                                                                                                                                                                                                                                                                                     /rpt_family="Alu"
12057. 12067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /rpt_unit=A
12365. .12645
/rpt_family="Alu"
13727. .13750
                                                                                                                                                                                                                                              113. .7373
rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        rpt_family="Alu"
9305. .19583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21736. .22035
/rpt_family="Alu"
22017. .22038
                                                                                                                                                                                                                                                                                                              pt_family-"Alu"
70. .9387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |202. .21496
:pt_family="Alu"
|736. .22035
                                                                     rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rpt_type=tandem
rpt_unit=AC
3783. .14024
                                                                                                                                                                                                                     rpt_type=tandem
rpt_unit=CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                               pt_type=tandem
                                                                                                                                                                                          647. .6684
note="(CA)19"
                                                                                                                                                                                                                                                                                                                                                                                                                                   12057. .12085
'note="(A)29"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3727. .13750
note="(AC)12"
                       repeat_region
                                                  repeat_region
                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                         repeat_region
                                                                                                                                   repeat_region
                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
```

```
Complement (35238. 35331)

/note="GRAIL 2 excellent exon, frame 2"

complement (35238. 35331)

/note="GRAIL 2 excellent exon, frame 1"

/note="GRAIL 2 excellent exon, frame 1"

36391. 3722

/note="l0% identity EST ou55c09.x1"

/db_xref="abEST:AIO25011"

36901. 37164

/standard_name="STG-9983"

/db_xref="abSTS:AIO2504"

/once="GRAIL 2 excellent exon, frame 0"

/note="GRAIL 2 excellent exon, frame 2 excellent exon, fr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  rpt_family="Alu"
coin(29485. .29559,29598. .29779)
note="9594 identity dbsTs:G14522 (SHGC-11312)"
phote="9594 identity dbsTs:G14522 (SHGC-11312)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement(31573 .31724)
/note="GRAIL 2 excellent exon, frame 1"
complement(32159. .32232)
/note="GRAIL 2 excellent exon, frame 2"
32388 .32488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18712. 28930
/rpt_family="MER20"
complement(28769. 28838)
/note="GRAIL 2 excellent exon, frame 0"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /standard_name="A1027942"
/standard_name="A1027942"
/note="100% identity EST ov84a10.x1"
complement(30401. .30536)
/note="GRAIL 2 excellent exon, frame
/rpt_family="MIR"
                                                                                                                              standard_name="possible repeat"
3022. .23326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement(24639. .24694)
/rpt_family="MER42"
complement(25349. .25713)
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement(25727, .26471)
/rpt_family="Alu"
27191. .27477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement (33670. .33785)
/rpt_family="Alu"
complement (34021. .34144)
                                                                                                                                                                                                                     /rpt_family="Alu"
23473. .23761
/rpt_family="Alu"
23744. .23767
/note="(A)24"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        27774. .28057
/rpt_family="Alu"
28040. .28066
/note="(A)27"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     pt_family="MLT1" 2617. .32908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2977. .33088
rpt_family="MLT1"
22321. .22457
/rpt_family="Alu"
complement(22638.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pt_family-"Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                     rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                rpt_type=tandem
rpt_unit=A
```

```
ಥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                 SOURCE
ORGANISM
                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
ORIGIN
                                                                         AUTHORS
TITLE
                                                                                                                                                                                                                                                          BASE COUNT
                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
     KEYWORDS
                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                        ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                 合
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               c<sub>D</sub>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product-"preproprotease"
/db_xref-"plb:q490197"
/translation-"bHSPVSpAESPAPQPGRPPPVVSRRLLEGGAAVLGALALSASP
LTAQAAVRRAAADEPPEWNDFGV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ô
                                                                                                                                                                                  Db 15918 KCKCTSTSKCSCMSRSKSKRGWGYRSWKKYRCAMWMTCKSSKCWCWSYRMRMKCYSCSYC 15977
                                                                                                                                                                                                  62 CSGTSGTSTCSCGSCGSCTSCTSGAGGGSGGSGCSGCSGTSCTSGGGGCCCTSGCSCTST 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                               01-DEC-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2 TGCCSCACTCSCCSGTSTCSCCSGCSGAGTCSCCSGCSCCSCAGCCSGGSCGSCCSCGSC 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-DEC-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                            Streptomyces griseus
Eubacteria: Firmicutes; Actinomycetes; Streptomycetees;
Streptomycetaceae; Streptomyces.
1 (bases 1 to 201)
Garvin, R.T. and James, E.
Production of active proteins containing cystine residues
partent: EP 0222279-A 2 20-MAY-1987;
44379. .44507))
/standard_name="histidyl-tRNA synthetase"
/note="78%-100% protein identity GenPept:U18937"
complement(38069. .38215)
/note="GRAIL 2 excellent exon, frame 0"
complement(38462. .38578)
                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A10161 201 bp DNA PAT 01-D
Synthetic DNA for preproprotease leader & prochymosin.
A10161
9490655
                                                                                                                             Length 74371;
                                                                                                                            Score 34; DB 26; Length 74371
Pred. No. 2.75e-04;
46; Mismatches 25; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 201;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    46 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 30; DB 21; Length 201
Pred. No. 4.44e-02;
35; Mismatches 57; Indels
                                                                                                                                                                                                                                                                                                      S.griseus gene for preproprotease (partial). A10158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1. .201
/organism="Streptomyces griseus"
/db_xref="taxon:1911"
1. .>201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    22 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                        Db 15978 YCSSGKKYWCRCSMYWYTCYYSYK 16001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    54 g
                                                                                                                                                                                                                                                                      2549 CACTGGACGTAGGACTTGCCCCTG 2526
                                                                                          ...
Note: remainder of annotations omitted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              122 CSGCSTCSCCSCTSACGGCCCAGG 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                  Streptomyces griseus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity 36.1%;
Matches 52; Conservative
                                                                                                                            Query Match 1.2%;
Best Local Similarity 15.5%;
Matches 13; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cangene Corporation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  o 99
                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCUS
DEFINITION
ACCESSION
NID
                                                                                                                                                                                                                                                                                                                13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 14
                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                              ď
                                                                                                                                                                                                                                                                      Сp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
```

```
/product="preproprotease leader & prochymosin"
\/Daxret="pi0;q490656"
//translation="MPHSPVSPAESPAPQPGRPRPVVSRRLLEGGAAVLGALALSASP
LTAQAAVRRAAREITRIPLYKGK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           86 GCCGAGCCGTGCCCCTGCTGCCACTACCGCGAGGTGCTGCCGCTGGCCACGT 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              57 CCTGGGCCGTSAGSGGSGASGCSGASAGSGCCAGGCCCCSAGSACSGCSGCSCCSCCT 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           117 CSAGSAGSCGSCGSGASACSACSGGSCGSCGSCCSGGCTGSGGSGCSGCSGACTCSG 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  26 TGCTGCGCACGTGGGAAGCCTGGCCCCGGCCATGCCGCGCATGCCGCGCGCTTGCCCGCT 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | : | | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | : | | : | : | | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2 TGCCSCACTCSCCSGTSTCSCCSGCSGAGTCSCCSGCSCCSCAGCCSGGSCGSCGSCGSC 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  synthetic construct.
synthetic construct
artificial sequence.
[1] (base 1 to 201)
Garvin, R.T. and James, E.
Production of active proteins containing cystine residues
Patent: EP 022279-A 6 20-MAY-1987;
Cangene Corporation
                                                                                    unclassified.

(bases 1 to 201)

(arvin,R.T. and James,E.

Production of active proteins containing cystine residues
Patent: EP 0122739-A 5 20-MAY-1987;

Cangene Corporation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A10162 201 bp DNA PAT 01-DI
Synthetic DNA for preproprotease leader & prochymosin.
A10162
9489115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 201;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 30; DB 21; Length 201;
Pred. No. 4.44e-02;
35; Mismatches 57; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  46 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 30; DB 21; Length 201
Pred. No. 4.44e-02;
35; Mismatches 57; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      46 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Artificial sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  construct"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             22 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  16 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1. .201
/organism="synthetic cc
/db_xref="taxon:32630"
a 51 c 66 g
                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 122 CSGCSTCSCCSCTSACGGCCCAGG 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CSGGSGASACSGGSGAGTGSGGCA 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity 36.1%;
Matches 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 1.1%;
Best Local Similarity 36.1%;
Matches 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .>201
unidentified unidentified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      177
```

******	***************************************
<u> </u>	
**************************************	**************************************
MPsrch_nna n.a. with	n.a n.a. database search, using Smith-Waterman algorithm with gap extension penalties as well as gap opening penalties
Run on:	Fri Dec 25 12:03:25 1998; MasPar time 8218.69 Seconds
Tabular output not generated.	
	508-08-951-733-13 (1-2848) from US08951733.seq (1 of 3)
N.A. Sequence: Comp:	2848 1 CACGCGTCCGGGCAGCGCTGGATGCCGGCCCACGGCCTAT 2848 GTGCGCAGGCCCGTCGCGACCTACGGCCGGTGCCGGATA
Scoring table:	TABLE default Gap open 30; Gap extend 1
Nmatch STD:	Dbase 0; Query 0
Searched:	2275026 seqs, 895388244 bases x 2
Post-processing: D	Minimum Match 0% Listing first 45 summaries
Database:	embl-est55
Database:	l:em_estl

Statistics: Mean 11.733; Variance 2.670; scale 4.395

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

5.9b_est16.9b_est10 7.9b_est11 8:9b_est12 9:9b_est13 10:9b_est14 11:9b_est15 12:9b_est16 13:9b_est17 14:9b_est18 15:9b_est19 16:9b_est2 17:9b_est20 18:9b_est21 05:9b_est2 17:9b_est20 18:9b_est21 18:9b_est3 20:9b_est4 21:9b_est5 22:9b_est6 23:9b_est7 24:9b_est8 25:9b_est9 26:9b_gss1 27:9b_gss2 28:9b_gss3 29:9b_gss4

ap C
Score Match Length DB ID
389 8
9.9
12
252 12
247 12
247 12
11
1.1 660 11 7
1287 12 #

13   25   0.9   181 6 AA836397 ESTER   13   25   0.9   187 13 AA83553   0.466   187 13 AA83553   0.466   187 13 AA83553   0.466   18   25   0.9   242 15 A1012107   0.27   0.9   242 15 A1012107   0.27   0.9   201 14 AA848951   0.27   0.9   201 14 AA832818   0.27   0.9   201   0.9   201   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9   0.9
REFER AUTHORN SOURCES OF COMMENTAL AUTHORN SO

```
1 (bases 1 to 409)

Adams, M.D., Kerlavage, A.R., Fleischmann, R.D., Fuldner, R.A.,

Bult, C.J., Lee, N. H., Kirkness, E.F., Welnstock, K.G., Gocayne, J.D.,

White, O., Sutton, G., Blake, J.A., Brandon, R.C., Man Wai, C.,

Clayton, R.A., Cline, T.R., Cotton, M.D., Earle-Hughes, J., Fine, L.D.,

Fitzgerald, L.M., Fitzhugh, W.M., Fritchman, J.L., Geoghagen, N.S.,

Glodek, A., Gnehm, C.L., Hanna, M.C., Hedblom, E., Hinkle, P.S.J.,

Kelley, J.M., Kelley, J.C., Liu, L.-I., Marmaros, S.M., Merrick, J.M.,

Moreno-Palanques, R.F., McDonald, L.A., Nguyen, D.T., Pelligrino, S.M.,

Phillips, C.A., Ryder, S.E., Scott, J.L., Saudek, D.M., Shilley, R.,

Small, K.V., Spriggs, T.A., Utterback, T.R., Weidman, J.F., Li, Y.,

Bednarik, D.P., Cao, L., Cepeda, M.A., Coleman, T.A., Collins, E.J.,

Dimke, D., Feng, D.-F., Ferrie, A., Fischer, C., Hastings, G.A.,
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         1750 TATGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAGTGTCTGG 1809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1810 AGCAAGTTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGGAGCTG 1869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1930 CGCITCATCCCCAAGCCIGACGGCCTGCGGCCCGAITGTGAACATGGACTACGTCGTGGGA 1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1990 GCCAGAACGTTCCGCAGAGAAAAAGAGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTG 2049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61 TATGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAGTGTCTGG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121 AGCAAGTTGCAAAGCATTGGAATCAGACACTTGAAGAGGGGTGCAGCTGCGGGACGTG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCTTCATCCCCAAGCCTGACGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGGA 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCAGAACGTTCCGCAGAGAAAAGAGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTG 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EST182469 Jurkat T-cells VI Homo sapiens cDNA 5' end, mRNA sequence.
4A311750
91964077
                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                              Length 389;
                                                                                                                                                                                                                                                                                                                                            Score 385; DB 8; Length 389
Pred. No. 0.00e+00;
0; Mismatches 2; Indels
                                                                                                                                                                                                                                                                           77 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361 TTCAGCGTGCTCAACTACGAGCGGGGGG 389
                                                                                                                                                                                                                                                                        123 g
                                                                                                                                                                                                                                                                                                                                            Query Match 13.5%;
Best Local Similarity 99.5%;
Matches 387; Conservative
                                                                                                                                                                                                                                                 <1. .>389
a 102 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                           ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HOMO.
                                                                                                                                                                                                                                     mRNA
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
```

ద ò g ö

ð

셤

ò

g ò g ò g 셤

ð

```
He,W.W., Hu,J.S., Greene,J.W., Gruber,J., Hudson,P., Kim,A.K., Kozak,D.L., Kunsch,C., Hungjun,J., Li,H., Melssner,P.S., Olsen,H., Raymond,L., Wei,Y.F., Wing,J., Xu,C., Yu,G.L., Ruben,S.M., Dillion,P.J., Fannon,M.R., Rosen,C.A., Haseltine,W.A., Fields,C., Fraser,C.M. and Venter,J.C.
Initial assessment of human gene diversity and expression patterns based upon 83 million nucleotides of cDNA sequence
Nature 377 (6547 Suppl), 3-174 (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AA754459 252 bp mRNA EST 20-JAN-1998 97SN1787 Rice Immature Seed Lambda ZAPII cDNA Library Oryza sativa cDNA clone 97SN1787, mRNA sequence.
AA754459 92801165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Oryza sativa

Bukaryotae; Viridiplantae; Charophyta/Embryophyta group;

Embryophyta; Tracheophyta; seed plants; Magnoliophyta; Liliopsida;

Poales; Poaceae; Oryza.

1 (bases 1 to 252)

1 (bases 1 to 252)

1 Kim, W.T., Kim, W.Y., Yang, M.S., Park, R.D., Sohn, U.I., Kang, K.Y.,

Lee, M.C. and Eun, M.Y.
                                                                                                                                                                                                                                                         The Institute for Genomic Research 9712 Medical Center Drive, Rockville, MD 20850 USA 9712 Medical Center Drive, Rockville, MD 20850 USA 9718 Medical Center Drive, Rockville, MD 20850 USA 9718 Sex: 3018699058 Email: arkerlav@tigr.org Email: arkerlav@tigr.org information related to this EST, please check the TIGR Human Gene Index (http://www.tigr.org/tdb/hgi/hgi.html)
Seq primer: M13 Reverse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Homo sapiens"
/note="Vector: pBluescript SK-; Site_1: EcoRI; Site_2:
XhoI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Large-scale Sequencing Analysis of ESTs from Rice Immature Seed Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 GGACCTGGTCCGAGGTGTCCCTGACTATGGCTGCGTGAACTTGCGGAAGACAGTGG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2720 GGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGTGAACTTGCGGAAGACAGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121 TGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGGCTTTTNTTCAGATGCCGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 409;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 187; DB 24; I Pred. No. 5.02e-269;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="ATCC (inhost):158964"
/db_xref="taxon:9606"
/clone_lib="Jurkat T-cells VI"
/cell_type="T-lymphocyte"
<1. .>409 133 g 86 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
1. .409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              133 g
                                                                                                                                                                                                                     Contact: Kerlavage, AR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ch 6.6%;
1 Similarity 98.9%;
187; Conservative
                                                                                                                                                                                                                                            Bioinformatics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2840 ACGCCCTAT 2848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181 ACGGCNTAT 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             rice.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          mRNA
BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                    JOURNAL
MEDLINE
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
```

```
Oryza sativa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        rice.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      쉽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                      1...252
/organism="Oryza sativa"
/cultivar="Milyang23"
/cultivar="Milyang23"
/note="Vector: pluescript SK(+); Site_1: EcoRI; Site_2:
/note="Vector: pluescript SK(+); Site_1: EcoRI; Site_2:
/note="Vector: pluescript SK(+); Site_1: EcoRI; Site_2:
/wetor at 5'end with EcoRI and 3' end with Xho I site."
/db_xref="taxon:6530"
/clone="97SN1787"
/clone="97SN1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AA754459 252 bp mRNA EST 20-JAN-1998 97SN1787 Rice Immature Seed Lambda ZAPII cDNA Library Oryza sativa cDNA clone 97SN1787, mRNA sequence.
AA754459 92801165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryotae; Viridiplantae; Charophyta/Embryophyta group; Embryophyta; Tracheophyta; seed plants; Magnoliophyta; Liliopsida; Poales; Poaceae; Oryza.

1 (bases 1 to 252)
Nahm, B.H., Kim, J.K., Cheong, J.J., Kim, S.I., Hahn, T.R., Moon, E.P., Kim, W.T., Kim, W.Y., Yang, M.S., Park, R.D., Sohn, U.I., Kang, K.Y., Lee, M.C. and Eun, M.Y.
                                                            Department of Cytogenetics
National Inst. of Agri. Sci. and Tech, RDA
Suwon, Kyungqido, Korea
Tel: 82 331 290 0307
Fax: 82 331 290 0307
Email: myeun@sun20.asti.re.kr
Email: myeun@sun20.asti.re.kr
Submitted by Baek Hie Nahm, Dept of Biological Science, Myongji
University, Yongin, Korea. 449-728 bhnahm@bioserver.myongji.ac.kr
Seq primer: M13 Reverse Primer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Email: myeun@sun20.asti.re.kr
Submitted by Back Hie Nahm, Dept of Biological Science, Myongji
University, Yongin, Korea. 449-728 bhnahm@bioserver.myongji.ac.kr
Seq primer: M13 Reverse Primer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Large-scale Sequencing Analysis of ESTs from Rice Immature Seed Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  84 NIKVDVGNHTRCSRWRBVTRMAHYHDYINCBBYNNNDYHMWHBBMYBBIGCMICIMWCWB 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         833 CAGGACCCCTGCCCAACGGCGTCCGCTCCGGCTCAGGGGCCACGCCTGGGCCTC 774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        144 HYNTKCTASGWHTSTNYDVKSSTNTWGVTBSYDKSMHGYWCSBBVKYHTKVSTTRATRSY 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        893 GCAGGTGACACCACACAGAAACCACGGTCACTCGGTCCACGCGTCCTGCCCGGGTGGGCC 834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BCHGNBVWVCVASHGNYMSVHNCTBRGTHCDCKNVNWSTMTWGTVNWBNVSGDWHYWBVB 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 252;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 58; DB 12; Length 252
Pred. No. 1.91e-48;
88; Mismatches 69; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Department of Cytogenetics
National Inst. of Agri. Sci. and Tech, RDA
Suwon, Kyunggido, Korea
Tel: 82 331 290 0301
Fax: 82 331 290 0307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 2.0%;
Best Local Similarity 12.8%;
Matches 23; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Eun M.Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Oryza sativa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rice.
                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                           FEATURES
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
```

```
/crganism="Oryza sativa"
/cultivar="Milyang23"
/cultivar="Milyang23"
/cultivar="Milyang23"
/note="Vector: pBluescript SK(+); Site_1: EcoRI; Site_2:
XhoI; Directional cDNA library inserted into lambda ZAPII
vector at 5'end with EcoRI and 3' end with Xho I site."
/db.xref="taxon:4530"
/clone="97SN1787"
/clone="97SN1787"
/clone_lib="Rice Immature Seed Lambda ZAPII cDNA Library"
/tissue_type="Immature Seed"
/dev_stage="5 days after pollination"
/lab_host="E. coli SOLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AA754458 247 bp mRNA EST 20-JAN-1998 97SN1784 Rice Immature Seed Lambda ZAPII cDNA Library Oryza sativa cDNA clone 97SN1784, mRNA sequence.
AA754458 92801164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Oryza sativa"
/cultivar="%ilyang23"
/note="Vector: PBluescript SK(+); Site_1: EcoRI; Site_2:
XhoI: Directional cBNA library inserted into lambda ZAPII
vector at 5'end with EcoRI and 3'end with Xho I site."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryotae: Viridiplantae; Charophyta/Embryophyta group;
Eukaryotae: Varidiplantae; Charophyta/Embryophyta; Liliopsida;
Enbryophyta: Tracheophyta; seed plants; Magnoliophyta; Liliopsida;
Poales: Poaceae: Oryza.
1 (bases 1 to 247)
Nahm,B.H., Kim,J.K., Cheong,J.J., Kim,S.I., Hahn,T.R, Moon,E.P.,
Kim,W.T., Kim,W.Y., Yang,M.S., Park,R.D., Sohn,U.I., Kang,K.Y.,
Lee,M.C. and Eur,M.Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Department of Cytogenetics
National Inst. of Agri. Sci. and Tech, RDA
National Inst. of Agri. Sci. and Tech, RDA
Way, Kynggido, Korea
Tel: 82 331 290 0301
Fax: 82 331 290 0307
Fax: 82 331 290 0307
Faxil: myeun@sun20.asti.re.kr
Submitted by Baek Hie Nahm, Dept of Biological Science, Myongji
University, Yongin, Korea. 449-728 bhnahm@bloserver.myongji.ac.kr
Seq primer: M13 Reverse Primer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Large-scale Sequencing Analysis of ESTs from Rice Immature Seed Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  80 WBVBNTKVDVGNHTRCSRWRBVTRMAHYHDYTNCBBYNNNDYHMWHBBMYBBTGCMTCTM 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       140 WCWBHYNTKCTASGWHTSTNYDVKSSTNTWGVTBSYDKSMHGYWCSBBVKYHTKVSTTRA 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20 TISYBCHGNBVWVCVASHGNYMSVHNCTBRGTHCDCKNVNWSTMTWGTVNWBNVSGDWHY 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        878 GIGIGGIGICACCIGCCAGACCCGGAAGAAGCCACCITITGGAGGGIGCGCICICIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 252;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 1.9%; Score 54; DB 12; Length 252
Best Local Similarity 8.7%; Pred. No. 2.26e-42;
Matches 18; Conservative 105; Mismatches 85; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              200 TRSYTCVRKYCVMWMTKKVVKKYHVVBB 227
Location/Qualifiers
1. .252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Contact: Eun M.Y.
```

```
80 a
                                                                                                                                                                                                                                                                                                                                                                        sequence.
AA200728
g1795738
                                                                                                                                                                                                                                                                                                                                                                                                                                       EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mRNA
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                             RESULT
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMMENT
                                                                                                                            윰
                                                                                                                                                                    S
                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1...247
/organism="Oryza sativa"
/cultivar="Milyang23"
/cultivar="Milyang23"
/note="Vector: pBluescript SK(+); Site_1: EcoRI; Site_2:
XhOI; Directional cDNA library inserted into lambda ZAPII
vector at 5'end with EcoRI and 3' end with XhO I site."
/db_xref="taxon:4530"
/clone="97SN1784"
/clone="97SN1784"
/clone="10-WRice Immature Seed Lambda ZAPII cDNA Library"
/tissue_type="Immature Seed"
/dev_stage="5 days after pollination"
/lab_host="E. coli SOLR"
7 a 16 c 21 g 34 t 169 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AA754458 247 bp mRNA EST 20-JAN-1998 97SN1784 Rice Immature Seed Lambda ZAPII cDNA Library Oryza sativa cDNA clone 97SN1784, mRNA sequence.
AA754458 92801164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Oryza sativa

Bukaryotae,

Bukaryotaes, Viridiplantae;

Charophyta/Embryophyta group;

Embryophyta:

Tracheophyta;

Poales;

Poaceae;

Oryza.

I (bases I to 247)

Nahm, B. H., Kim, J. K., Cheong, J. J., Kim, S. I., Hahn, T. R., Moon, E. P.,

Kim, W. T., Kim, W. Y., Yang, M. S., Park, R. D., Sohn, U. I., Kang, K. Y.,

Large-scale Sequencing Analysis of ESTs from Rice Immature Seed

Uppublished (1998)
/db_xref="taxon:4530"
/clone=-aySAN1784.
/clone=lib="sySAN1784"
/tissue_type="Immature Seed Lambda ZAPII cDNA Library"
/tissue_type="Immature Seed"
/dev_stage="5 days after pollination"
/lab.host="E. coli SOLR"
/lab.host="E. coli SOLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Eun M.Y.
Department of Cytogenetics
Mational Inst. of Agri. Sci. and Tech, RDA
Suwon, Kyunggido. Korea
Tel: 82 331 290 0307
Fax: 82 331 290 0307
Fmail: myeun8sun2O.asti.re.kr
Submitted by Baek Hie Nahm, Dept of Biological Science, Myongji
University, Yongih, Korea. 449-728 bhnahm@bloserver.myongji.ac.kr
Seq primer: M13 Reverse Primer.
                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                              88 TNTGGTGVGKTTVNVHSGWNNRCSNSVVYVWBTAYCDYBHYBDRANHVDDTRCTNDRGYC 147
                                                                                                                                                                                                                                                                                                                                                                            242 CCTGGGACGCACGGCCCCCCCCCCCCTTCCGTTCCGCCAGGTGTCCTGCTGAAGG 301
                                                                                                                                                                                                                                                                                                                                                                                                                                   148 NYTASDNGTSATKRVTGYDKTDSDCGGCGWRKVTYGSSBYBRCGVNVMVRTTSMWTDKST 207
                                                                                                                                                                                                                                                                                                                                                                                                                                                        302 AGCTGGTGGCCCGAGTGCTGCAGAGGCTGTGCGAGCGCGCGAAGAACGTGCTGCCT 361
                                                                                                                                                                                                                                                                   28 TBBWCCVRRVGTTTNNGKHNGRTTTWNDCSDNAHCRYTVBWYYARSKYGYGTBYYSWNVD 87
                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                               ö
                                                                                                                                                                                       Length 247;
                                                                                                                                                                                     Score 49; DB 12; Length 247
Pred. No. 5.98e-35;
93; Mismatches 88; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          362 TCGGCTTCGCGGCTCTGGACGGGCCCG 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 208 KMBSMDMSRRSRVHYGRWMBNKKRGMSR 235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                   Query Match 1.7%;
Best Local Similarity 13.0%;
Matches 27; Conservative
                                                                                                                            Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 rice.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      φ
                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
                                                                                                                                                                                                                                                                     쉱
                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                           ò
```

```
(bases 1 to 375)

Marra,M., Hillider,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Gelsel,S., Kucaba,T., Lacy,M., Le,M., Martlin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Washington University School of MedicineP
Tel: 314 286 1800
Fax: 314 286 1810

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AA200728 375 bp mRNA EST 19-FEB-1997 mul3h09.rl Soares 2NbMT Mus musculus cDNA clone 639329 5', mRNA
                                                                                                                                                                                                                                             133 GCCCCTGTGGATATCGTCCAGGCCCAGGACGCGCCCAGGAGGCCGGGGCGCCCGC 2074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
                                                                                                                                                                                         111 SNSVVYVWBTAXCDYBHYBDRANHVDDTRCTNDRGYCNYTASDNGTSATKRVTGYDKTDS 170
                                                                                                   Gaps
                                                                                              ő
                                                                                                                                                                                                                                                                                                                                                                                                                                 171 DCGGCCWRKVTYGSSBYBRCGVNVMVRTTSMWTDKSTKMBSMDMSRRSRV 220
    Length 247;
Score 44; DB 12; Length 247
Pred. No. 9.37e-28;
60; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Seg primer: -28Ml3 rev2 from Amersham
High quality sequence stop: 361.
Location/Qualifiers
1.375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Contact: Marra M/Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone_lib="Soares 2NbMT"
/sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Waterston, R.
The WashU-HHMI Mouse EST Project
Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /tissue_type="Thymus"
/dev_stage="4 weeks"
/lab_nost="DH10B"
<l. .>375
a 95 c 105 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          105 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone="639329'
Query Match 1.5%;
Best Local Similarity 12.7%;
Matches 14; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     house mouse.
```

```
ಗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                        JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
ORIGIN
                                                                                                                                              TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Genetics,
                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                    AF034173 2275 bp mRNA EST 22-DEC-1997
homo sapiens ntcon2 contig mRNA, partial sequence, mRNA sequence.
AF034173
92707735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AF034177 660 bp mRNA EST 22-DEC-1997
Homo sapiens ntcon6 contig mRNA, partial sequence, mRNA sequence.
AF034177
                                                                                                                                              2447 AGAGCTCCTCCTGAATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGT 2506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1523 RGMKKCWKYRKYKKYTSTYYKSWSRWYWYTTYTYWYCWCCTSMKSASCAMMRWMGYMGSR 1582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     144 AGAGCATCTCTATGAATGAGCAGCAGCAGCCTGTTTGACTTCTTCCTGCACTTCCTGC 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryotae; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhin; Hominidae; Homo.

1 (bases 1 to 2275)

Tripodis,N. and Ragoussis,J.
Generation of a transcription map in the region immediately centromeric to human MHC across the 6p21.2-6p21.3 chromosomal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
Eukaryotae; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Primates; Catarnini; Hominidae; Homo.
1 (bases 1 to 660)
Tripodis, N. and Ragoussis, J.
Generation of a transcription map in the region immediately
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unpublished
2 (bases 1 to 2275)
2 (bases 1 to 2275)
3 (bases 2 to 2275)
5 (bases 2 to 2275)
5 (brights and Ragoussis, J.
5 (brintsde (13-NoV-1997) Division of Medical and Molecular G (brights)
6 (brights)
6 (brights)
7 (br
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 33; DB 11; Length 2275; Pred. No. 5.05e-13; 47; Mismatches 25; Indels
  Length 375;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       149 others
Score 33; DB 23; Length 375
Pred. No. 5.05e-13;
0; Mismatches 16; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    599 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone="ntcon2 contig"
/tissue_type="liver; brain"
/dev_stage="fetus"
/note="similar to Br140"
619 c 470 g 599 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1. .2275
/organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ь
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2708 AAACCITCCTCAGGACCCTGGTC 2730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1583 SSRSYWGYWGSMSGCYGMTKRYY 1605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /map="6p21.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 1.2%;
Best Local Similarity 13.3%;
Matches 11; Conservative
Query Match
1.2%;
Best Local Similarity 75.4%;
Matches 49; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g2707739
                                                                                                                                                                                                                                                                                   GCCAC 2511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                boundary
                                                                                                                                                                                                                              204 GTCAC 208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               human.
                                                                                                                                                                                                                                                                                                                                                                         ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                      2507
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                a
                                                                                                                                                                        õ
                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                      ò
```

```
Homo sapiens
Eukaryotae; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Eukaryotae; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Eukaryotae; Catarnhini; Hominidae; Homo.
1 (bases 1 to 1287)
Tripodis,N. and Ragoussis,J.
Direct Submission
Submitted (12-DEC-1997) Division of Medical and Molecular Genetics,
Guy's Hospital, 7th floor, Guy's Tower, London SE1 9RT, UK
Location/Qualifiers
                                     boundary
Unpublished
Unpublished
2 (bases 1 to 660)
2 ripodis,N. and Ragoussis,J.
Tripodis,N. and Ragoussis,J.
Direct Submitsed (13-NoV-1997) Division of Medical and Molecular Genetics,
Submitted (13-NoV-1997) Division of Medical and Molecular Genetics,
Guy's Hospital, 7th floor, Guy's Tower, London SEl 9RT, UK
Location/Qualifiers
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AF038250 1287 bp mRNA EST 29-JAN-1998
Homo sapiens clone ntcon9 mRNA, partial sequence, mRNA sequence.
AF038250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCUS AF038250 1287 bp mRNA EST 29-JAN-1998 DEFINITION Homo sapiens clone ntcon9 mRNA, partial sequence, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     401 DCBTGGGDTBSHBVCMCBCBANADGATBATCGKVGGVBGASTCMTHYNCCDCKTCGSAGV 460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               brain; fetal liver; adult muscle"
centromeric to human MHC across the \mathsf{6p21}.2\text{-}\mathsf{6p21}.3 chromosomal boundary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 1287;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 660;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           65 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 31; DB 11; Length 660
Pred. No. 1.45e-10;
31; Mismatches 7; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29; Mismatches 27; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 384 WSSRCCYRSYGMYHYYYCYYKKCDMSCTTSKSRWYKSKRSWCDCD 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 28; DB 12;
Pred. No. 4.79e-07;
                                                                                                                                                                                                                                                                                                                                                                                                        109 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /clone="ntcon9"
/dev_stage="fetal"
/tissue_type="brain; liver"
/note="similar to HSRP20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361 t
                                                                                                                                                                                                                  1. .660
/organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="6"
/map="6p21.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="6"
/map="6p21.3"
                                                                                                                                                                                                                                                                                                                              /clone="ntcon6 contig"
/tissue_type="fetal bra
/note="similar to CutA"
161 c 173 g 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      293 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | :::::: | | :||||||
TGTCCTGCCTGAAGGAGCT 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            461 TVNHHDWSMAGGAARAGCT 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity 15.6%;
Matches 7; Conserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 1.0%;
Best Local Similarity 29.1%;
Matches 23; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         219 c
```

```
Query Match 0.9%;
Best Local Similarity 76.6%;
Matches 36; Conservative
                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                                                                 human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                          13
                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE
COMMENT
                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                             KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                               SOURCE
                                                                                                      g
                                                                                                                                        ე
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AI171394 143 bp mRNA EST 07-0CT-1998 EST217350 Normalized rat muscle, Bento Soares Rattus sp. cDNA clone RMUBK19 3' end, mRNA sequence.
                                                                                                Primates; Catarrhin; Hominidae; Homo.

1 (bases 1 to 1287)

Tripodis,N. and Ragoussis,J.

Direct Submitssion
Submitted (12-DEC-1997) Division of Medical and Molecular Genetics,
Guy's Hospital, 7th floor, Guy's Tower, London SE1 9RT, UK

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.

1 (bases 1 to 143)
Lee, N.H., Gloddek, A., Chandra, I., Mason, T.M., Quackenbush, J., Kerlavage, A.R. and Adams, M.D.
Rat Genome Project: Generation of a Rat EST (REST) Catalog & Rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 .143
/organism="Rattus sp."
/organism="Rattus sp."
site_1: NotI"
Site_2: NotI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        407 GDTBSHBVCMCBCBANADGATBATCGKVGGVBGASTCMTHYNCCDCKTCGSAGVTVNHHD 466
                                                                    Homo sapiens
Eukaryotae; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /clone="RMUBK19"
/clone_llb="Normalized rat muscle, Bento Soares"
49 c 58 q 22 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The Institute for Genomic Research 9712, Medical Center Drive, Rockville, MD 20850, USA Tel: (301)-838-3529 Fax: (301)-838-0208 Email: nhlee@tigr.org Seq primer: M13-21.
                                                                                                                                                                                                                                                                                                                                                                                                                                Length 1287;
                                                                                                                                                                                                                                                                                                                                                                                 65 others
                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 28; DB 12; Length 128
Pred. No. 4.79e-07;
29; Mismatches 19; Indels
                                                                                                                                                                                                                                                                                                                                               /tissue_type="brain; liver"
/note="similar to HSRP20"
                                                                                                                                                                                                                                                                                                                                                                                   361 t
                                                                                                                                                                                                                                     /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /db_xref="taxon:10118"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      58 9
                                                                                                                                                                                                                                                                                                                                                                                 293 g
                                                                                                                                                                                                                                                                                         /map="6p21.3"
/clone="ntcon9"
/dev_stage="fetal"
                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 1.0%;
Best Local Similarity 23.8%;
Matches 15; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unpublished (1998)
Other_ESTs: TC52270
Contact: Lee, NH
                                                                                                                                                                                                                                                                                                                                                                                   219 c
                                                                                                                                                                                                                           1. .1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rattus sp.
Rattus sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gene Index
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AI171394
93711434
AF038250
92815880
                                                     human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1366 AGC 1364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        467 WSM 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
                                                                  ORGANISM
                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                      TITLE
JOURNAL
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        c<sub>p</sub>
```

```
Adams, M.D., Kerlavage, A.R., Fleischmann, R.D., Fuldner, R.A.,
Bult, C.J., Lee, M.H., Kirkness, E.F., Weinstock, K.G., Goozyne, J.D.,
White, O., Sutton, G., Blake, J.A., Brandon, R.C., Man-Wai, C.,
Clayton, R.A., Cline, T.R., Cotton, M.D., Earle-Hughes, J., Fine, L.D.,
Fitzgerald, L.M., Fitzhugh, W.M., Fritchman, J.E., Geoghagen, N.S.,
Glodek, A., Gnehm, C.L., Hanna, M.C., Hedblom, E., Hinkle, P.S.JT.,
Kelley, J.M., Kelley, J.C., Liut, L.-I., Marmaros, S.M., Merrick, J.M.,
Moreno-Palanques, R.F., McDonald, L.A., Nguyen, D.T., Pelligrino, S.M.,
Phillips, C.A., Ryder, S.E., Scott, J.L., Saudek, D.M., Shirley, R.,
Small, K.V., Spriggs, T.A., Utterback, T.R., Weidman, J.F., Li, Y.,
Bednarik, D.P., Cao, L., Cepeda, M.A., Coleman, T.A., Collins, E.J.,
Dinke, D., Feng, D.F., Ferrie, A., Fischer, C., Hastings, G.A.,
Kozak, D.L., Kunsch, C., Hungjun, J., Li, H., Meissner, P.S., Olsen, H.,
Raymond, L., Wei, Y.F., Wing, J., Li, H., Meissner, P.S., Olsen, H.,
Raymond, L., Wei, Y.F., Wing, J., Li, H., Meissner, P.S., Olsen, H.,
Brases, C.M. and Venter, J.C.
Initial assessment of human gene diversity and expression patterns
based upon 83 million nucleotides of CDNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Email: arkerlav@tigr.org
For clone availability, additional sequence and expression
information related to this EST, please check the TIGR Human Gene
Index (http://www.tigr.org/tdb/hgi.hfml)
Seq primer: M13 Reverse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="Organ: prostate; Vector: pBluescript SK-; Site_1:
BCORI, Site_2: XhOI"
/db_xref="ATCC (inhost):174439"
/db_xref="RATCC (inhost):17459"
                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                   AA386387 181 bp mRNA EST 22-APR-1997 EST81369 Prostate gland I Homo sapiens CDNA 5' end similar to prolyl 4-hydroxylase, beta subunit/protein disulfide isomerase/thyroid hormone-binding protein, mRNA sequence. AA386387
                                                                           Gaps
                                                                    ;
0
Score 25; DB 18; Length 143;
Pred. No. 8.99e-04;
0; Mismatches 11; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Other_ESTS: EST81368 THC170792
Contact: Kerlavage, AR
Bioinformatics
The Institute for Genomic Research
9712 Medical Center Drive, Rockville, MD 20850 USA
Tel: 3018699056
Fax: 3018699423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 181;
                                                                                                                                     50
                                                                                                                                                                       103 GGGAGCGCACGGCTCGGCAGCGGGGACGCGCGCGCGCGGGGGTG 57
                                                                                                                                     4 GGGAGCGCATGGGCCCGGCTGCGGGCTCGCGCCGCCGCTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone_lib="Prostate gland I"
/sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           32 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /dev_stage="adult, 21 yrs"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1. .181
/organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        59 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
0
0
```

```
Eukaryotae; Metazoa; Eumetazoa; Bilateria; Coelomata; Obeichthyes; Deuterostomia; Chordata; Vertebrata; Grathostomata; Osteichthyes; Sarcopterygii; Choanata; Tetrapoda; Amniota; Mammalia; Theria; Eutheria; Archonta; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mashington University School of Medicine
444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
Final: est@watson.wustl.edu
High quality sequence stops: 185
Source: IMAGE Consortium, LLNL
This clone is available royalty-free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                             (bases 1 to 213)
Hillier, L., Clark, N., Dubuque, T., Elliston, K., Hawkins, M.,
Holman, M., Hultman, M., Kucaba, T., Le, M., Lennon, G., Marra, M.,
Parsons, J., Rifkin, L., Rohlfing, T., Soares, M., Tan, F.,
Trevaskis, E., Waterston, R., Williamson, A., Wohldmann, P. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           32 CTGCCCCGGGCCACGTTTGTGAGCAGCGTGAGACCCCGAGAGCTCTCGGCTG 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 16; Length 213;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Mismatches 13; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 25; DB 16; Pred. No. 8.99e-04;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Search completed: Fri Dec 25 14:50:06 1998 Job time: 10001 secs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   69 d
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Wilson, R.
The WashU-Merck EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /clone="157744"
72 C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 0.9%;
Best Local Similarity 74.5%;
Matches 38; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unpublished (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: Wilson RK
                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   40 a
R72797
9846829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
ACCESSION
NID
                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                               AA855630 187 bp mRNA EST 06-MAR-1998 vw68h11.rl Stratagene mouse heart (#937316) Mus musculus cDNA clone 1260165 5' similar to TR:099960 099960 PLAKOPHILIN 2A. [1] ;, mRNA
                                                                                                                                                                                                                                                                                                                         Mus musculus
Eukaryota, Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Eukaryota, Metazoa; Chordata; Vertebrata; Mus.
1 (bases 1 to 187)
Marrah, M. Hallier, L., Allen, M., Bowles, M., Dietrich, N., Dubuque, T., Geisel, S., Kucaba, T., Lacy, M., Le, M., Martin, J., Morris, M., Schellenberg, K., Steptoe, M., Tan, F., Underwood, K., Moore, B., Theising, B., Wylie, T., Lennon, G., Soares, B., Wilson, R. and
                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
Email: mouseest@watson.wustl.edu
This clone is available royalty.free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               02-JUN-1995
                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 187;
                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /dev_stage="13 day embryos"
/lab_host="SOLR (kanamycin resistant)"
65 c 70 g 23 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LOCUS R72797 213 bp mRNA EST DEFINITION y109c09.rl Homo sapiens cDNA clone 157744 5'.
Pred. No. 8.99e-04;
0; Mismatches 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Contact: Marra M/Mouse EST Project
WashU-HHMI Mouse EST Project
Washington University School of MedicineP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MGI:662717
Seq primer: -28ml3 revl ET from Amersham
High quality sequence stop: 178.
Location/Qualifiers
1. 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 25; DB 13;
Pred. No. 8.99e-04;
0; Mismatches 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                105 GGTGGCGGCAGCAGCGGCGGCGACCCGGCGGC 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Waterston, R.
The WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /tissue_type="heart"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /sex-"pooled"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 0.9%;
Best Local Similarity 85.7%;
Matches 30; Conservative
Best Local Similarity 70.0%;
Matches 42; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Unpublished (1996)
                                                                                                                                                                                                                                                                                                           house mouse.
                                                                                                                                                                                                                             sequence.
AA855630
g2943168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R72797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                     14
                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    169
                                                       32
                                                                                         89
                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                       유
                                                                                         ò
```

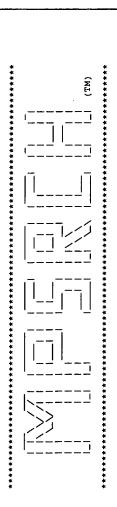
ö

Gaps

ö

are particular con

THIS PAGE BLANK (USPTU)



Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

MPsrch_nna n.a. - n.a. database search, using Smith-Waterman algorithm with gap extension penalties as well as gap opening penalties

Fri Dec 25 14:50:27 1998; MasPar time 906.76 Seconds 427.322 Million cell updates/sec Run on:

Tabular output not generated.

>US-08-951-733-13 (1-2848) from US08951733.seq (1 of 3) 2848 Title: Description: Perfect Score: N.A. Sequence:

1 CACGCGTCCGGGCAGCGCTG........GATGCCGGCCCACGGCCTAT 2848 GTGCGCAGGCCCGTGCCGGATA.

Scoring table:

TABLE default Gap open 30; Gap extend 1

188442 segs, 68026449 bases x 2 Searched:

Dbase 0; Query 0

Mmatch STD

Minimum Match 0% Listing first 45 summaries Post-processing:

i.partl 2:part2 3:part3 4:part4 5:part5 6:part6 7:part7 8:part8 9:part9 10:part10 11:part11 12:part12 13:part13 14:part14 15:part15 16:part10 11:part11 18:part18 20:part20 21:part21 22:part22 23:part23 24:part24 25:part25 26:part26 27:part27 28:part28 39:part29 30:part30 31:part31 32:part32 33:part33 33:part34 40:part40 30:part36 37:part37 38:part38 n-geneseq32 Database:

Mean 9.722; Variance 6.270; scale 1.551 Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

ö

Gaps

;

Ouery Match
Best Local Similarity 7.3%; Pred. No. 1.95e-10;
Matches 4; Conservative 46; Mismatches 5; Indels

6 cggcgssvhsyyvvhvvshhhsvhhvvhvhvvhhvvhvvhhvhyhvyvsv 60

RESULT

δλ

1.3 114 12 Q70468 Generic DNA sequence 9. 1.3 114 12 Q70470 Generic DNA sequence 1.3 114 12 Q70470 Generic DNA sequence 1.3 114 12 Q70469 Generic DNA sequence 1.3 114 12 Q70466 Generic DNA sequence 1.2 14 12 Q70466 Generic DNA sequence 1.2 163 32 T76307 Human RANTES antisens 1.2 172 32 T76363 Human interleukin 8 1.2 172 32 T76363 Human GN-CSF antisens 1.1 172 32 T76405 Human endothelin-1 an 3.		6338 Substance P antisense 2. 6274 Human neutrophil elas 2. IGNMENTS  ycobacteria; disease diagnosis;	Synthetic. EP-571911-A. 10.1-DEC-1993. 24-MAY-1993, 108325. 26-MAY-1993; US-889651. 26-MAY-1992; US-889651. 26-MAY-1992; US-889651. 26-MAY-1992; US-889651.  Next oligo:nucleotide probes specific for Mycobacteria - used for detection and amplification of Mycobacteria nucleic acid in samples Claim 3; Page 14; 23pp; English. Claim 4; Page 14; 23pp; English. Claim 4; Page 14; 23pp; English. Claim
नंतनंतनंतनंतनंतनंतनं -		29 1.0 29 1.0 standard 1994 (f ucleotide	Synthetic. EP-571911-A. Ol-DEC-1993. 24-MAY-1993; 108 26-MAY-1993; 108 26-MAY-1993; 08-1 Shank DD, Spear, WPI; 93-3788444 New oligo:nucleo detection and amy samples Claim 3; Page 14 Oligonucleotide (051735). It hy cross reacted to be useful as an See also Q51735- Sequence 91 BP
11 11 11 11 11 12 13 13	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	ac	NAM SS. SYNTHETIC. SYNTHETIC. PN EP-571911- PD 01-DEC-199 PR 26-MAY-199 PR 26-MAY-199 PR 18ECT ) BE PI Shank DD, PT SHOW DD, CC (01490nucle CC (01490nucle CC (01490nucle CC (01490nucle CC (01490nucle CC (058 reac CC See also QS Sequence
00000 0		X A A A A A B E I	X O O O O O O O O O O O O O O O O O O O

~

```
Best Local Similarity 20.9%;
Matches 31; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                 45
                                                                                                                                                  105
                                                                                                      ò
                                                                                                                                               g
                                                                                                                                                                                             δ
                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Introducing random point mutations into nucleic acods -

by prepn of single stranded template, annealing a primer, elongation,
misincorporation, completion of molecules and screening.

Disclosure; p; English.

Random point mutations were introduced into the alpha fragment of
E.coll beta galactosidase. The wild type sequence was obtained as a
single stranded template and an oligonucleotide was hybridised to
it to generate a popn of DNA molecules which terminate at all
possible nucleotide positions within a specified region. The
variable 3' ends generated in this way are used as primers for
reverse transcriptase. Nucleotides are misincorporated by the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             transcriptase and the molecules are completed to forms that can be amplified and then expressed in a suitable host-vector system. The sequence covers all 176 difft base substitutions, most of which occurred singularly in any given mutant.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4 tccggcgssvhsyyvvhvvshhhsvhhvvhhvhvsvvvvhhvvhvhhvhhyhvyvsvct 62
                                                                                                                                                                                                                                                                                                                                                                                  MK14
but
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           08-NOV-1990 (first entry)
Base substituted E.coli beta-galactosidase alpha-fragment.
E.coli beta galactosidase alpha-fragment; base substitutions; ss.
Escherichia coli.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      108 Others;
                                                                                                                                                                                                                                                                                                                                                                            Oligonuclectide probe MK14.A consists of nucleotides 5-95 of (Q51735). It hybridized to all spp. of mycobacteria tested, cross reacted to a few non-mycobacterial spp. The probe may be useful as an initial screen for mycobacterial infection. See also Q51735-45 and Q51747-59.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Lehtovaara P, Knowles J, Koivula A, Bamford J, Reinikainen T; WPI; 88-279927/40.
                                                                                                                                                                                                                                                                                                    nseq
                                     31-WAY-1994 (first entry)
Oligonucleotide probe MK14-A
Oligonucleotide; DNA probe; mycobacteria; disease diagnosis;
                                                                                                                                                                                                                                                                                           New oligo:nucleotide probes specific for Mycobacteria - used detection and amplification of Mycobacteria nucleic acid in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 45; DB 9; Length 91;
Pred. No. 1.95e-10;
45; Mismatches 7; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  function-multiple cloning site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ġ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      47 C;
                                                                                                                                                                                                                                                                                                                                                               English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N81164 standard; DNA; 204 BP.
  BP.
                                                                                                                                                                                                                              (BECT ) BECTON DICKINSON CO.
Shank DD, Spears PA;
WPI; 93-378844/48.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              / Match 1.6%;
Local Similarity 11.9%;
nes 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21 A;
standard; cDNA; 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ಥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        187..204
/*tag= b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          03-APR-1987; US-034819.
(SUSO) SUOMEN SOKERI OY.
                                                                                                                                                                                                                                                                                                                                                          Page 14; 23pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19..69
/*tag=
                                                                                                                                                                                         24-MAY-1993; 108325.
26-MAY-1992; US-889651.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     05-MAY-1988.
30-MAR-1988; 105163.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    204 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         91 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P80575.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                          Synthetic.
EP-571911-A.
                                                                                                                                                                   01-DEC-1993.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EP-285123-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                See also
                                                                                                                                                                                                                                                                                                                                                            Claim 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                           samples
051746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NACOUNT OF THE PROPERTY OF THE
  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ე
```

DB 1; Length 204;

Score 43;

1.5%;

Query Match

```
designed so that the expressed peptide contains 1 or 4 cysteine residues positioned in, or flanking, the unpredicted or variant residues. These residues confer some degree of conformational rigidity to the peptides. The TSARs or comprising a TSAR binding domain can be used in vivo to deliver a chemically or biologically active moiety, eg. metal ion, radioisotope, peptide, toxin or enzyme, to the specific target or on the cell. They can also replace the function of macromolecules, eg. monoclonal or polyclonal antibodies and therefore circumvent the need for complex methods of hybridoma formation or in vivo antibody production. The TSARs are easily characterised and have designed activity allowing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Another than 15 and 15 
                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ynrsdaaawyccyrrsvkydccynachhddhyvybbbvynvhnhnncncccbnnhvchnv 164
                                                                                                                                                                                                                               bcyrraggnycccggggywccgagcycgaayycdchvgccgymrttthhyrrmrbnvyrd 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Generic DNA sequence to generate a random TSAR-9 petide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; reffector domain; concatenated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                          829 TCCTGGGCCCACCCGGGCAGGACGCGTGGACCGAGTGACCGTGGTTTCTGTGTGGTGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         889 CCTGCCAGACCGCCGAAGAAGCCACCTCTTTGGAGGGTGCGCTCTCTGGCACGCGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Identifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins comprising a binding domain and an effector domain Disclosure; Page 35, 255pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  can pe
                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 40; DB 12; Length 114
Pred. No. 8.94e-08;
32; Mismatches 70; Indels
Pred. No. 2.32e-09;
57; Mismatches 60; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note= "this sequence represents 'Z'; Z sequence of 6, 9 or 12 nucleotides (see comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Z ', Z,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           direct and rapid detection in a screening process Sequence 114 BP; 0 A; 4 C; 4 G; 4 _{
m T}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      hbnnhrnwayvrhdarrddvhccvchcc 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOHN NOT HE STANDARD OF THE ST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1.4%;
larity 8.9%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q70466 standard; DNA; 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18-AUG-1994,
01-FEB-1994, U00977,
01-FEB-1993; US-0134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity
Matches 10; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 94-279739/
P-PSDB; R65152.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    05-APR-1995
```

(first entry) standard; DNA; 178

```
Human endothelin-1 antisense oligonucleotide.
Asthma; airway epithelium; adenosine free; cystic fibrosis;
chronic obstructive pulmonary disease; bronchitis; ss.
                                                                                                                                                                                                                                                           Synthetic.
WO9640162-Al.
                                                                                                                                15-SEP-1997
                                                        LT 6
T76405
                                                                                                         T76405;
                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ID AND DESCRIPTION DE PROPRIEDA DE PRO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FOWLKES DM, RAY BK.

OUTPUT ONLY WORTH CAROLINA.

DR FOWLKES DM, RAY BK.

TIGENTIFYING PIOTORIES OF PEPTIGE(S) Which bind a ligand - by
Identifying proteins or peptide(s) which bind a ligand - by
Identifying proteins or peptide(s) which bind a ligand - by
Screening a recombinant vector library expressing fusion proteins

PR SCREENING SEQUENCES TO BE STOPE IN STRAINS TO BE STRAINS TO STRAINS TO BE STRAINS TO STRAINS AND STRAINS AND STRAINS STRAINS AND STRAINS STRAINS AND STRAINS STRAINS AND STRAINS STRAINS STRAINS STRAINS AND STRAINS STRAINS STRAINS AND STRAINS ST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
Generic DNA sequence to generate a random TSAR peptide library.
TSAR: totally synthetic affinity reagent; synthetic; binding domain;
effector domain; concateneated heterofunctional protein; linker;
direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 tgcnnbnnbnnbnnbnnbnnbnnbnnbnnbchtgcnnbnnbnnbnnbnnbnnbnnbnnnnnn 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  can be a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                    bnabanbanbanbanbanbanbtgcanbanbanbanbanbanbanbanb 114
                                                                                                                                                  208 CGCGCGCTGGTGCCCAGTGCCTGGTGCGTGCCTGGGACGCACGGCCGC 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         209 GCGCGCTGGCCCAGTGCCTGGTGCCTGGGACGCACGCCGC 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 39; DB 12; Length 114; Pred. No. 2.97e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         71; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note= "this sequence represents 'z'; z
sequence of 6,9 or 12 nucleotides (see
comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           32; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4
C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     process.
                                                                                                                                                                                                                          .r 5
Q70469 standard; DNA; 114 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
A;
                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /*tag= a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  detection in a screening
Sequence 114 BP; 0 A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-013416.
US-176500.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        U00977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best_Local Similarity
Matches 8; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    30-DEC-1993;
31-JAN-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-FEB-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                  07-APR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                             0469;
                                                                                                    63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          යු
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                               셤
                                                                                                                                                     ô
                                                                                                                                                                                                                                                      ò
  셤
                                                     ö
```

```
A method for treating airway disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonucleotide (ON) to the airway epithelium of the subject. The present sequence is an antisense oligonucleotide specific for the human endothelin-1, targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary disease, bronchitis and other airway diseases characterised by an inflammatory response. By eliminating adenosine from the antisense ON, its liberation upon antisense degradation is prevented, thereby preventing adenosine-induced bronchoconstriction in patients with hyper-reactive airways. Sequence 178 BP; 0 A; 52 C; 46 G; 32 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        105 cbbgccbcbbbcbgcbgbgbgbbbtcbtgbgcbbttbttccbttctgbbbbbbgggbt 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Introducing random point mutations into nucleic acods - by prepn of single stranded template, annealing a primer, elongation, misincorporation, completion of molecules and screening. Disclosure: p; English.
Random point mutations were introduced into the alpha fragment of E.coli beta-galactosidase. The wild type sequence was obtained as a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               08-NOV-1990 (first entry)
Base substituted E.coli beta-galactosidase alpha-fragment.
E.coli beta galactosidase alpha-fragment; base substitutions; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lehtovaara P, Knowles J, Koivula A, Bamford J, Reinikainen T; WPI; 88-279927/40.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 178;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 39; DB 32; Length 178
Pred. No. 2.97e-07;
34; Mismatches 17; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /function-multiple cloning site
187..204
/*tag= b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                         Claim 5; Page 38; 71pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N81164 standard; DNA; 204 BP. N81164;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         22; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /*tag= a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                03-APR-1987; US-034819.
(SUSO) SUOMEN SOKERI OY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           165 cbbbbbcctcccg 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        256 CCGCCCCCCCC 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             30-MAR-1988; 105163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EP-285123-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                         subject
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
```

ö

```
888888888
                                                                                                                                                                             셤
                                                                                                                                                                                                                              g
                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              that the expressed peptide contains on a dystation as a seaso designed so in, or flanking, the unpredicted or variant residues. These residues confer some degree of conformational rigidity to the peptides. The TSARs or compans. comprising a TSAR binding domain can be used in vivo to
                                                                                                                                                                                        ö
                                                                                                                                                                                                                             2093 AGGAGGCGGGGGCGCGCCCCCTAAGTTGAGCACGTGAAACAGTGCCTTCACCCTC 2034
                                                                                                                                                                                                                                                                                    2033 GAGGTGAGACGCTCCTCTTTTCTCTGCGGAACGTTCTGGCTCCCACGACGTAGTCC 1974
                                                                                                                                                                                                               50 aggnyccccgggywccgagcycgaayycdchvgccgymrttthhyrrmrbnvyrdynrsd 109
                                                                                                                                                                                                                                                                   110 aaawyccyrrsvkydccynachhddhyvybbbvynvhnhnncncccbnnhvchnvhbnnh 169
                                                                                                                                                                                                                                                                                                                                                                                                                                       Generic DNA sequence to generate a random TSAR petide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                        Gaps
single stranded template and an oligonucleotide was hybridised to it to generate a popn of DNA molecules which terminate at all possible nucleotide positions within a specified region. The variable 3' ends generated in this way are used as primers for reverse transcriptase. Nucleotides are misincorporated by the transcriptase and the molecules are completed to forms that can be amplified and then expressed in a suitable host-vector system. The sequence covers all 176 difft base substitutions, most of which occurred singularly in any given mutant.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /*tag= a
//note= "this sequence represents '2'; 2 can be a
sequence of 6, 9 or 12 nucleotides (see
comments)"
                                                                                                                                    108 Others;
                                                                                                                                                                                        ó
                                                                                                                                                             Score 41; DB 1; Length 204;
Pred. No. 2.67e-08;
                                                                                                                                                                                        Indels
                                                                                                                                     11 T;
                                                                                                                                                                                        59;
                                                                                                                                                                                        58; Mismatches
                                                                                                                                   17 G;
                                                                                                                                    47 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                              1973 ATGTTCACAATCGGCCGCAGCCCG 1950
                                                                                                                                                                                                                                                                                                                    170 rnwayvrhdarrddvhccvchccg 193
                                                                                                                                                                                                                                                                                                                                                                                     T 8
Q70468 standard; DNA; 114 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-FEB-1993; US-013416.
30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
(UNC-) UNIV NORTH CAROLINA.
                                                                                                                                                              1.4%;
                                                                                                                                    21 A;
                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                       27; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      55..60
/*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Fowlkes DM, Ray BK;
WPI; 94-279739/34.
P-PSDB; R65154.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              U00977
                                                                                                                                                                          Best Local Similarity
                                                                                                                                    204 BP;
                                                                                                                        See also P80575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                             Q70468;
05-APR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO9418318-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Synthetic.
                                                                                                                                                             Query Match
                                                                                                                                     Sequence
                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                   RESULT
  88888888888888
                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                ď
```

```
Tidentifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins

PT Generifying a binding domain and an effector domain

Disclosure; Page 35; 255pp; English.

COMPACTS is a generic DNA Sequence used to generate random TSAR (Totally Disclosure; Page 35; 255pp; English.

COMPACTS is a generic DNA Sequence used to generate random TSAR (Totally COMPACTS) peptides. This generic formula can also be represented as follows: X(NNB) G(TGC)(NNB) 11Z(NNB) 14(TGC)(NNB) 3Y. X

COMPACTS is a generic objection sites (X is not the same as Y) that are not specified further. Other generic sequences are shown in Q70466-68.

COCHER Specified further. Other generic sequences are shown in Q70466-68.

COCHER Specified further concatenated by these generic sequences are shown in CR65151-54. TSARs are concatenated by these generic sequences are shown in CR65151-54. TSARs are concatenated by these generic sore peptides, comprising at least two functional regions - a binding domain with CCC definity for a ligand and a second effector peptide portion that is chanically or biologically active. They may further comprise a linker of peptide between the 2 domains. The Oligonucleotides are also designed so that the expressed peptide contains 2 or 4 cysteine residues. These residues confer some degree of conformation of macromolecules, eg.

CCC that the expressed peptide contains 2 or 4 cysteine residues. The TSARs or compens. comprising a TSAR binding domain can be used in vivo to deliver a chemically or biologically active motety, eg. metal ion, cadioisotope, peptide, toxin or enzyme, to the specific target or on the conformation or an envison and therefore circumvent the need conformation and percentaged and have designed conformation or in vivo antibody conformation. The TSARs are easily characterised and have designed activity allowing direct and rapid detection in a screening process.
deliver a chemically or biologically active moiety, eg. metal ion, radioisotope, peptide, toxin or enzyme, to the specific target or on the cell. They can also replace the function of macromolecules, eg. monoclonal or polyclonal artibodies and therefore circumvent the need for complex methods of hybridoma formation or in vivo antibody production. The TSARs are easily characterised and have designed activity allowing direct and rapid detection in a screening process.
                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                  151 CGGCGCCTGGGGCCCCAGGGCTGGCGGGTGCAGCGCGGGGGACCCGGCGGCTTTCCGC 210
                                                                                                                                                                                                                                                                                                                                               Generic DNA sequence to generate a random TSAR petide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       þe
                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    211 GCGCTGGTGGCCCAGTGCCTGGTGTGCGTGCGCACGGCCGCCC 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                   63 banbanbanbanbanbanbtgcanbanbanbanbanbanbanbanbanb 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         can
                                                                                                                                                                                                                                           Length 114;
                                                                                                                                                                                                                                                                                              73; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sequence of 6, 9 or 12 nucleotides (see comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sequence represents 'Z';
                                                                                                                                                                                                                                        Score 38; DB 12; I
Pred. No. 9.79e-07;
34; Mismatches 73;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7 9
Q70465 standard; DNA; 114 BP.
Q70465;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /*tag= a
/note= "this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
Fowlkes DM, Kay BK;
                                                                                                                                                                                                                                        Query Match 1.3%;
Best Local Similarity 4.5%;
Matches 5; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 94-279739/34.
P-PSDB; R65150 and R65151.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              05-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-013416.
US-176500.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   . 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       30-DEC-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-FEB-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Synthetic.
```

S

ö

```
Tidentifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins promptising a binding domain and an effector domain bisclosure; Page 35; 255pp; English.

Disclosure; Page 35; 255pp; English.

Comprising a binding domain and an effector domain bisclosure, Page 35; 255pp; English.

Comprising at lanking restriction sites (x is not the same as Y) that are conceptive further. Other generic sequences are shown in 707046-68.

Cont specified further. Other generic sequences are shown in 707046-68.

Contrising at least two functional regions - a binding domain with affinity for a ligand and a second effector peptide portion that is chemically or biologically active. They may further comprise a linker comprising at least two functional regions - a binding domain with affinity for a ligand and a second effector peptide portion that is chemically or biologically active. They may further comprise a linker comprise between the 2 domains. The oligonucleotides are also designed so that the expressed peptide contains 2 or 4 cysteine residues positioned in or flanking, the unpredicted or variant residues. These residues confer some degree of conformational rigidity to the peptides. The TSARs or comprising a TSAR binding domain can be used in vivo to deliver a chemically or biologically active molety, eg. metal lon, confirmation the peptide to to the peptide or on the conformation or enzyme, to the specific target or on the
                                                                                                                                                     2490 CTTCCTACGCTTCATGTGCCACCACGCGTGCGCATCAGGGGCAAGTCCTACGTCCAGTG 2549
                                                                                                                 3 banbanbanbanbanbtgcanbanbanbanbanbanbanbanbanbanbanbanban
                                                                                                                                                                                                                                                                                                                                                                                            domain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ø
                                                                                                                                                                                                                                                                                                                                                                      Generic DNA sequence to generate a random TSAR petide library. TSAR: totally synthetic affinity reagent; synthetic; binding domeffector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 can pe
                                                                              ö
                                                                                                                                                                                                                              2550 ccassssarccscassscrccarccrcrccacscrscrscasscrssss
                                                                                                                                                                                            Length 114;
                                      Score 38; DB 12; Length 114
Pred. No. 9.79e-07;
33; Mismatches 73; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note= "this sequence represents 'Z'; Z sequence of 6, 9 or 12 nucleotides (see comments)"
  2 T;
2
G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
  2 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /*tag= a
/note= "this
                                                                                                                                                                                                                                                                                           r 10
Q70467 standard; DNA; 114 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   31-JAN-1994; US-189331.
(UVNC-) UNIV NORTH CAROLINA.
FOWIKES DM. RAY BK;
WPPI; 94-279739/34.
P-PSDB; R65153.
                                                          5.48;
  0 A;
                                                                                                                                                                                                                                                                                                                                                   05-APR-1995 (first entry)
                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-176500.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           . 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-013416
  114 BP;
                                                          Sest Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-FEB-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       30-DEC-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO9418318-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Synthetic.
  Sequence
                                          Query Match
                                                                                                                                                                                                                                                                                                                                 070467;
                                                                            Matches
                                                                                                                                                                                                                                                                                             RESULT
  တ္ထ
                                                                                                                   合
                                                                                                                                                       ô
                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                               셤
```

```
g
                                                  ö
                                                                                                  d
                                                                                                                                                     ŏ
                cell. They can also replace the function of macromolecules, eg. amonoclonal or polyclonal antibodies and therefore circumvent the need for complex methods of hybridoma formation or in vivo antibody production. The TSARs are easily characterised and have designed activity allowing
                                                                                                                                                                                                        Length 114;
                                                                                                                                                                                                  Score 36; DB 12; Length 114
Pred. No. 1.03e-05;
34; Mismatches 74; Indels
                                                                                                                          detection in a screening process
                                                                                                                                                                                                  Query Match 1.3%;
Best Local Similarity 3.6%;
Matches 4; Conservative
                                                                                                                        direct and rapid
                                                                                                                                                        Sequence
```

ö

Gaps

ö

m

名

```
recenting a recombinant vector library expressing fusion proteins recenting a recombinant vector library expressing fusion proteins by comprising a binding domain and an effector domain proteins bisclosure; Page 36; 25pp; English.

O70470 is a generic DNA sequence used to generate random TSAR (Totally C70470 is a generic DNA sequence used to generic formula can also be represented as follows: x(NNB)4(CAC)(NNB)4(CAC)(NNB)8C(NNB)6(CAC)(NNB)8C(CAC)(NNB)8C(CAC)(NNB)8C(CAC)(NNB)8C(CAC)(NNB)8C(CAC)(NNB)8C(CAC)(NNB)8C(CAC)(NNB)8C(CAC)(NNB)8C(CAC)(NNB)8C(CAC)(NNB)8C(NNB)8C(CAC)(NNB)8C(NNB)8C(CAC)(NNB)8C(NNB)8C(NNB)8C(CAC)(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB)8C(NNB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       monoclonal or polyclonal antibodies and therefore circumvent the need for complex methods of hybridoma formation or in vivo antibody production. The TSARs are easily characterised and have designed activity allowing direct and rapid detection in a screening process. Sequence 114 BP, 5 A, 10 C; 0 G; 0 T;
CTCCCTGCTGCGCAGCCACTACCGCGAGGTGCTGCCGCTGGCCACGTTCGTGCGGCGCCT 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10-APR-1995 (first entry)
Generic DNA sequence to generate a random TSAR peptide library.
TSAR, totally synthetic affinity reagent; synthetic; binding domain;
effector domain; concatenated heterofunctional protein; linker;
direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3 bnnbnnbnnbcacnubnnbnnbnnbcacnnbnnbnnbnnbnnbnnbnnbnnbnnnnn 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  552 GGCTCCCAGCTGCGCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCTCGGC 603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   63 bnnbnnbnnbnnbnnbcacnnbnnbnnbnnbnnbnnbnnbnnbcaccacnnb 114
                                                                                                                           GGGCCCCCAGGGCTGGCGGCTGCAGCGCGGGGACCCGGCGGCTTTCCGC 210
                                                                         Identifying proteins or peptide(s) which bind a ligand - by
screening a recombinant vector library expressing fusion pro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 36; DB 12; Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     30; Mismatches 71; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /*tag= a
/note= "encoded by Z (see comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. 1.03e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-FEB-1993; US-013416.
30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
FOWIKES DM, KAY BK;
WPI: 94-279739/34.
P-PSDB; RS8378.
                                                                                                                                                                                                       T 11
Q70470 standard; DNA; 114 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JT 12
070465 standard; DNA; 114 BP.
070465;
05-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.3%;
larity 9.8%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                55..60
/*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       000977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO9418318-A
                                                                                                                                                                                                                                                                                                                                                                                                                             Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                             070470;
                   66
                                                                                                                           159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a y a
                                                                      g
                                                                                                                                                                                                                                      à
                                                                                                                           ö
```

ဖ

```
m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
     Сb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Trentifying proteins or peptide(s) which bind a ligand - by recenting a recombinant vector library expressing fusion proteins or peptide domain and an effector domain proteins comprising a binding domain and an effector domain bisclosure; Page 35; 255pp; English.

5 Disclosure, Page 35; 255pp; English.

5 Disclosure, Page 35; 255pp; English.

6 O70465 is a generic DNA sequence used to generate random TSAR (Totally Synthetic Affinity Reagents) peptides. This generic formula can also be represented as follows: X(NNB)6(TGC)(NNB)112(NNB)14(TGC)(NNB)3Y. X and Y are flanking restriction sites (X is not the same as Y) that are not specified further. Other generic sequences are shown in CO40466.88.

6 Other specified further other generic sequences are shown in R65151-54. TSARS are concatenated heterofunctional proteins or peptides.

7 Comprising at least two functional regions - a binding domain with affinity for a ligand and a second effector peptide portion that is chemically or biologically active. They may further comprise a linker peptide between the 2 domains. The olloquic peptide portion that is chemically or biologically active. They may further comprise a linker of function and the specifies are also designed to that the expressed peptide contains 2 or 4 cysteine residues positioned in, or flanking, the unpredicted or variant residues. These residues conference and conformational rigidity to the peptides. The TSARS corrections are chemically or biologically active moiety, eg. metal ion, radioisotope, peptide, toxin or enzyme, to the specific target or on the formational or polyclomal or polyclomal or polyclomal or polyclomal or polyclomal or polyclomal or periodes and therefore circumvent the need for the function of macromolecules, eg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Generic DNA sequence to generate a random TSAR petide library. TSAR: totally synthetic affinity reagent; synthetic; binding domain; effector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for complex methods of hybridoma formation or in vivo antibody production. The TSARs are easily characterised and have designed activity allowing direct and rapid detection in a screening process. Sequence 114 BP; 0 A; 2 C; 2 G; 2 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Generic DNA sequence to generate a random TSAR petide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; reffector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                          ď
                                                                                                                                                                                                        þe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1467 GCCCCGCACGAAGCCGTACACCTGCCAGGGGCTGCTGTGCTGGCGGAGCAGC 1416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               bnabanbanbanbanbanbanbanbanbanbanbanbtgcanbanbanb 114
                                                                                                                                                              /*tag= a
/note= "this sequence represents 'Z'; Z can
sequence of 6, 9 or 12 nucleotides (see
comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            73; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 38; DB 12;
Pred. No. 9.79e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         34; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
55..60
                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                         01-FED 30-DEC-1993; US-1/0000.
31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .T 13
Q70468 standard; DNA; 114 BP.
Q70468;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1.3%;
larity 4.5%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  05-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            P-PSDB; R65150 and R65151
                                                                                                                                                                                                                                                                                                                                                    US-013416.
US-176500.
US-189331.
                                                                                                                                                      55..60
/*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                               WO9418318-A
                                                                                                 Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               පු
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAMES OF THE PROPERTY OF THE P
```

```
Discussure; Fagy 33, 239Pg/ Laugush.

Confide is a generic DNA sequence used to generate random TSAR (Totally Synthetic Affinity Reagents) peptides. This generic formula can also be represented as follows: X(NNB)1(TGC)(NNB)7(TGC)(NNB)10Y. X and Y are flanking restriction sites (X is not the same as Y) that are not specified further. Other generic sequences are shown in Q70466-68.

Confidence of the specific peptides generated by these generic sequences are shown in R65151-54. TSARS are concatenated heterofunctional proteins or peptides, comprising at least two functional regions - a binding domain with affinity for a ligand and a second effector peptide portion that is affinity for a ligand and a second effector peptide portion that is comprising at least two functional regions - a binding domain with affinity for a ligand and a second effector peptide portion that is comprised between the 2 domains. The oligonuclectides are also designed so that the expressed peptide contains 2 or 4 cysteine residues positioned in, or flanking, the unpredicted or variant residues. Therefore confers some degree of conformational rigidity to the peptides. The TSARs correctly or biologically active moiety, eg. metal ion, additiver a chemically or biologically active moiety, eg. metal ion, correctly peptide, toxin or enzyme, to the specific target or on the color or peptide in the specific target or on the color or polyclonal antibodies and therefore circumvent the need for complex methods of hybridoma formation or in vivo antibody complex methods of hybridoma formation or in vivo antibody conformation. The TSARs are easily characterised and have designed activity sequence 114 BP; 0 A; 2 C; 2 G; 2 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1542 CTTGGTGTTCCTGAGGAGCGGCGTTCGTTGTGCCTGGAGCCCCAGAGGCCTGGGGGGCAC 1483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        bunbanbanbanbanbanbanbanbanbanbtqcanbanbanbanbanbanbanbannann 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Generic DNA sequence to generate a random TSAR petide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Identifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins comprising a binding domain and an effector domain Disclosure; Page 35; 255pp; English.
                                     ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    55..60
/*tag= a
/note="this sequence represents 'Z'; Z can be
sequence of 6, 9 or 12 nucleotides (see
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1482 CAGCCGGCGCAGGCCCGCACGAAGCCGTACACCTGCCAGGGGCTGCTG 1431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    63 bnabanbanbanbanbtgcanbanbanbanbanbanbanbanbanbanb 114
                                     can
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            73; Indels
                              Z ', Z,
                                                                   or 12 nucleotides (see
/*tag= a
/note= "this sequence represents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 12; L
9.79e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            34; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 38;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                   σ
                                                            sequence of 6,
                                                                                                                                                                                                                                             01-FEB-1993; US-013416.
30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
FOWINSE DM, KAY BK;
WPI: 94-279739/34.
P-PSDB; R65154.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     T 14
Q70467 standard; DNA; 114 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1.3%;
larity 4.5%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           05-APR-1995 (first entry)
                                                                                                             comments)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18-AUG-1994.
01-FEB-1994; U00977
                                                                                                                                                                                                                   U00977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
                                                                                                                                                                             18-AUG-1994.
01-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO9418318-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             070467;
```

```
Search completed: Fri Dec 25 15:11:06 1998 Job time : 1239 secs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         요
   윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Сp
                                                                                                                                                                                          Discioure; Fegge 35; 252pp; English.

Confering a generic DNA sequence used to generate random TSAR (Totally Synthetic Affinity Reagents) peptides. This generic formula can also be represented as follows: X(NNB)16(TGC)(NNB)12(NNB)16(TGC)(NNB)12. X and Y are flanking restriction sites (X is not the same as Y) that are not specified further. Other generic sequences are shown in Q70466-68.

Confers specific peptides generated by these generic sequences are shown in R65151-54. TSARS are concatenated heterofunctional proteins or peptides, comprising at least two functional regions - a binding domain with affinity for a ligand and a second effector peptide portion that is comprising at least two functional regions - a binding domain with affinity for a ligand and a second effector peptide portion that is comprise a linker peptide between the 2 domains. The oligonucleotides are also designed so that the expressed peptide contains 2 or 4 cysteine residues positioned in, or flanking, the unpredicted or variant residues. These residues confer some degree of conformational rigidity to the peptides. The TSARs or comprise a chemically or biologically active moiety, eg. metal ion, additiver a chemically or biologically active moiety, eg. metal ion, additiver a chemically or biologically active moiety, eg. metal ion, colling and an also replace the function of macromolecules, eg. monoclonal or polyclonal antibodies and therefore circumvent the need for complex methods of hybridoma formation or in vivo antibody production. The TSARs are easily characterised and have designed activity allowing direct and rapid detection in a screening process.

Sequence 114 BP; 0 A; 0 A; 2 C; 2 C; 2 C; 2 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 38; DB 12; Length 114;
Pred. No. 9.79e-07;
34; Mismatches 73; Indels 0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Generic DNA sequence to generate a random TSAR peptide library.
TSAR: totally synthetic affinity reagent; synthetic; binding domain;
effector domain; concatenated heterofunctional protein; linker;
direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                         Identifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins comprising a binding domain and an effector domain bisclosure, Page 35, 255pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1497 GAGGCCTGGGGGCACCAGCCGGCGCAGGCCGCCGCACGAAGCCGTACACC 1446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /*tag= a
/note= "encoded by Z (see comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     r 15
Q70470 standard; DNA; 114 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
FEWALKES DM, RAY BK;
WPI; 94-279739/34.
                                31-JAN-1994; US-189331.
(UVNC-) UNIV NORTH CAROLINA.
FOWINES DM, RAY BK;
WPIF; 94-279739/34.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-013416
US-013416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18-AUG-1994.
01-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-FEB-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO9418318-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         070470;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
C
```

Identifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins

R58378

P-PSDB;

```
Disclosure, Page 36; 255pp; English.

Disclosure, Page 36; 255pp; English.

O70470 is a generic DNA sequence used to generate random TSAR (Totally Synthetic Affinity Reagents) peptides. This generate formula can also be represented as follows: X(NNB)4(CAC)(NNB)4(CAC)(NNB)8Z(NNB)6(CAC)(NNB)8.

CCAC)2(NNB)Y. X and Y are flanking restriction sites (X is not the same as Y) that are not specified further. The peptides generated by this and other generic sequences (Q7041-73) have invariant histidine residues.

Incorporated into variant Sequences. TSARs are concatenated to the reprint a binding domain with affinity for a ligand and a second effector peptide portain with affinity for a ligand and a second effector peptide portain that is chemically or biologically active. They may further comprise a linker peptide between the 2 domains. The TSARs or comprising a TSAR binding domain can be used in vivo to deliver a chemically or biologically active molety, eg. metal ion.

C adioisotope, peptide, toxin or enzyme, to the specific target or on the coll. They can also replace the function of macromolecules, eg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2625 CAGCTTGTTCTCCATGTCGCCGTAGCACAGGCTGCAGAGCAGCGTGGAGGATGGAGCC 2566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the need
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3 banbanbanbcacanbanbanbanbanbcacanbanbanbanbanbanbanbanbannann 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      monoclonal or polycional antibodies and therefore circumvent the nee for complex methods of hybridoma formation or in vivo antibody production. The TSARs are easily characterised and have designed activity allowing discrete and rapid detection in a screening process. Sequence 114 BP; 5 A; 10 C; 0 G; 0 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 12; Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. 1.03e-05;
30; Mismatches 66; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2565 CIGCGGGAICCCCIGGCACIGGACGIAGGACTIGCCCCIGAIGC 2522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        63 banbanbanbanbanbcacanbanbanbanbanbanbanbc 106
comprising a binding domain and an effector domain
Disclosure; Page 36; 255pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 1.3%;
Best Local Similarity 7.7%;
Matches 8; Conservative
```

PAGE BLANK (USPTO)

į

```
RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QHMUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUU
                                                                                                                                                                                                                                                                                                                                                                                                   1 CACGCGTCCGGGCAGCGCTG.........GATGCCGGCCCACGGCCTAT 2848 GTGCGCAGGCCCGTGCCGGGTAT 2848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.00e+00
0.0
                                                                                                                                                                                                                                                                                              MasPar time 5202.31 Seconds
586.621 Million cell updates/sec
                                                                                                                                   (TM)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1:P9 2:U6000 3:U6001 4:U6002 5:U6003 6:U6004 7:U6005 8:U6006 9:U6007 10:U6008 11:U7 12:U80 13:U81 14:U82 15:U83 16:U84A 17:U84B 18:U85 19:U86 20:U87 21:U88 23:U99A 24:U90B 25:U91 26:NEWP 27:NEWU6 28:NEWU8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 is the number of results predicted by chance to have a nter than or equal to the score of the result being printed, ived by analysis of the total score distribution.
                                                                                                                                                                                                                                                   \text{n.a.} - \text{n.a.} database search, using Smith-Waterman algorithm with gap extension penalties as well as gap opening penalties
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 13, Applicati
Sequence 19, Applicati
Sequence 1, Applicati
Sequence 224, Applicat
Sequence 1, Applicatio
Sequence 1, Applicatio
Sequence 173, Applicatio
Sequence 173, Applicatio
Sequence 173, Applicatio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18, Applicati
4, Applicatio
6, Applicatio
                                                                                                                                                                                       Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   36, Applicati
3, Applicatio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Applicatio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mean 10.979; Variance 4.476; scale 2.453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                        >US-08-951-733-13
(1-2848) from US08951733.seq (1 of
2848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1665728 seqs, 535777161 bases
                                                                                                                                                                                                                                                                                              Fri Dec 25 15:16:55 1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                               TABLE default
Gap open 30; Gap extend 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-951-
US-08-911-
US-08-912-
US-08-912-
US-09-052-
US-08-912-
US-08-851-
US-08-851-
US-08-911-
US-08-912-
US-08-912-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Minimum Match 0%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -09-042-
-09-026-
-08-912-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-951-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  score greater than or equal and is derived by analysis c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     not generated.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    22848
33798
77029
77029
77029
77029
8015
38029
38029
38029
38029
38029
38029
38029
38029
38029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               n-pending
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Dbase 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1000.0
1000.0
999.6
999.6
999.6
999.6
999.6
999.6
999.6
999.6
999.7
999.7
999.7
999.7
999.7
999.7
999.7
999.7
999.7
999.7
999.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                    Sequence:
Comp:
                                                                                                                                                                                                                                                                                                                            Tabular output
                                                                                                                                                                                                                                                                                                                                                                     Description:
Perfect Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Statistics:
                                                                                                                                                                                                                                                      MPsrch_nna
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Database:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nmatch
                                                                                                                                                                                                                                                                                                Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N.A.
```

```
| 15 | 735 | 25.8 | 2117 21 | US-00-866 | Sequence 100, Applicate 0, 000e-00 | |
| 16 | 735 | 25.8 | 2171 21 | US-00-866 | Sequence 100, Applicate 0, 000e-00 |
| 17 | 75 | 25.8 | 2171 21 | US-00-861 | Sequence 21, Applicate 0, 000e-00 |
| 18 | 735 | 25.8 | 2171 21 | US-00-861 | Sequence 22, Applicate 0, 000e-00 |
| 19 | 735 | 25.8 | 2171 21 | US-00-861 | Sequence 23, Applicate 0, 000e-00 |
| 22 | 385 | 11.5 | 399 21 | US-00-861 | Sequence 23, Applicate 0, 000e-00 |
| 24 | 385 | 11.5 | 399 21 | US-00-861 | Sequence 24, Applicate 0, 000e-00 |
| 25 | 385 | 11.5 | 399 21 | US-00-861 | Sequence 27, Applicate 0, 000e-00 |
| 26 | 385 | 31.5 | 399 21 | US-00-861 | Sequence 27, Applicate 0, 000e-00 |
| 26 | 385 | 31.5 | 399 21 | US-00-861 | Sequence 27, Applicate 0, 000e-00 |
| 27 | 385 | 31.5 | 399 21 | US-00-861 | Sequence 17, Applicate 0, 000e-00 |
| 28 | 385 | 31.5 | 399 21 | US-00-861 | Sequence 17, Applicate 1, 180-35 |
| 28 | 31.5 | 31.5 | 31.5 | 31.5 | 31.5 | 31.5 |
| 29 | 20 | 2.4 | 477 | 11 | US-00-904 | Sequence 17, Applicate 1, 180-35 |
| 20 | 2.4 | 477 | 11 | US-00-904 | Sequence 18, Applicate 1, 180-35 |
| 20 | 2.4 | 477 | 11 | US-00-904 | Sequence 19, Applicate 1, 180-35 |
| 20 | 2.4 | 477 | 11 | US-00-904 | Sequence 19, Applicate 1, 180-35 |
| 20 | 2.4 | 578 | 19 | US-00-804 | Sequence 19, Applicate 1, 180-35 |
| 20 | 2.4 | 578 | 19 | US-00-804 | Sequence 19, Applicate 1, 180-35 |
| 20 | 2.4 | 578 | 19 | US-00-804 | Sequence 19, Applicate 1, 180-35 |
| 20 | 2.4 | 578 | 19 | US-00-804 | Sequence 19, Applicate 1, 180-35 |
| 20 | 2.4 | 578 | 19 | US-00-804 | Sequence 19, Applicate 1, 180-35 |
| 20 | 2.4 | 578 | 19 | US-00-804 | Sequence 19, Applicate 1, 180-35 |
| 20 | 2.4 | 578 | 19 | US-00-804 | Sequence 19, Applicate 1, 180-35 |
| 20 | 2.4 | 578 | 19 | US-00-804 | Sequence 19, Applicate 1, 180-35 |
| 20 | 2.4 | 578 | 19 | US-00-804 | Sequence 19, Applicate 1, 180-35 |
| 20 | 2.4 | 578 | 19 | US-00-804 | Sequence 19, Applicate 1, 180-35 |
| 20 | 2.4 | 578 | 19 | US-00-804 | Sequence 19, Applicate 1, 180-35
```

```
ô
                                                                                                                                                                                                  240
                                                                                                                             120
                                                                                                                                           120
                                                                                                                                                          180
                                                                                                                                                                        180
                                                                                                                                                                                      240
                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                               360
                                                                                                                                                                                                                                                           360
                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                        420
                                                                                                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                                                   480
                                                                                                                                                                                                                                                                                                                                  540
                                                                                                                                                                                                                                                                                                                                              540
                                                                                                                                                                                                                                                                                                                                                             009
                                                                                                                                                                                                                                                                                                                                                                           600
                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                       999
                                                                                                                                                                                                                                                                                                                                                                                                                      720
                                                                                                                                                                                                                                                                                                                                                                                                                                   720
                                                                                                                                                                                                                                                                                                                                                                                                                                                  780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        900
                                                                                                  9
                                                                                    Gaps
                                                                                                GTGCGCAGCTACCTGCCCAACACGGTGACCGACGCACTGCGGGGGAGCGGGGCGTGGGGG
                                                                                                                                                                                                                                                                                                                                        CCCGCGATGCCGCGCGCTCCCCGCTGCGAGCCGTGCGCTCCCTGCTGCGCAGCCACTAC
                                                                                                                                                          CGCGAGGTGCTGCCGCTGGCCACGTTCGTGCGGCGCCTGGGGCCCCAAGGGCTGGCGGCTG
                                                                                                                                                                                     GTGCAGCGCGGGGACCCGGCGCTTTCCGCGCGCTGGTGGCCCAGTGCCTGGTGCGTG
                                                                                                                                                                                                                  TTCGGCTTCGCGCTGCTGGACGGGGCCCGCGGGGCCCCCCCGAGGCCTTCACCACCAGC
                                                                                                                                                                                                                                                                                CTGCTGCTGCGCGCGTGGCGACGACGTGCTTCACCTGCTGGCACGCTGCGCGCTC
                                                                                                                                                                                                                                                                                                                                                             TTTGTGCTGCTGCCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCTC
                                                                                                                                                                                                                                                                                                                                                                                         GGCGCTGCCACTCAGGCCCGGCCCCGCCACACGCTAGTGGACCCCCGAAGGCGTCTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                      TGCGAACGGGCCTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                            CCGGGTGCGAGGAGGCGCGGGGGCAGTGCCGAAGTCTGCCGTTGCCCAAGAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGGCGTGGCGCTGCCCCTGAGCCGGAGCGGACGCCCCGTTGGGCAGGGGTCCTGGGCCCCAC
                                                                                   ö
                                                                      2848;
                                                                                   Indels
                                                                     Length
                                                        OTHER
                                                                                  ,;
,
                                                                    Score 2848; DB 22;
Pred. No. 0.00e+00;
0; Mismatches 0;
                                                        0
                                                        .,
H
                                                        488
                                                        ö
                                                        945
TELEFAX: (805) 499-8011
INFORMATION FOR SEQ ID NO: 13:
                                                        ပဲ
            SEQUENCE CHARACTERISTICS:
LENGTH: 2848 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: CDNA
SEQUENCE 2848 BP; 437 A; 978 C;
                                                                    Query Match
Best Local Similarity 100.0%;
Matches 2848; Conservative
                                                                                                                                           61
                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                           541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       841
                                                                                                                             61
                                                                                                                                                         121
                                                                                                                                                                                      181
                                                                                                                                                                                                    181
                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                                                                                             541
                                                                                                                                                                                                                                                                                                                                                                                         601
                                                                                                                                                                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                                                                                                                                      661
                                                                                                                                                                                                                                                                                                                                                                                                                                    661
                                                                                                                                                                                                                                                                                                                                                                                                                                                 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          841
                                                                                                                                                                                                                                           g
88888888888
                                                                                                 셤
                                                                                                              ò
                                                                                                                            셤
                                                                                                                                          ò
                                                                                                                                                        g
                                                                                                                                                                       ò
                                                                                                                                                                                  셤
                                                                                                                                                                                                  ò
                                                                                                                                                                                                                g
                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                               Б
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
```

1260 1440 1020 1020 1140 1260 1320 1320 1380 1440 1500 1560 1560 1680 1740 1800 960 AACCACGCGCAGTGCCCCTACGGGGTGCTCCT.CAAGACGCACTGCCCGCTGCGGAGCTGCG TGGCTGCGCAGGAGCCCAGGGGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAG GAGATCCTGGCCAAGTTCCTGCACTGGCTGATGAGTGTGTACGTCGTCGAGCTGCTCAGG CGGGAGCTGTCGGAAGCAGAGGTCAGGCAGCATCGGGAAGCCAGGCCCGCCTGCTGACG TCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTAC GTGGGCCGCCAGCACCACGCGGCCCCCCATCCACATCGCGGCCACCACGTCCCTGGGAC ACGCCTTGTCCCCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAG GTCACCCCAGCAGCAGCGGTGTCTGTGCCCGGGAGAAGCCCCCAGGGCTCTGTGGCGGCCCCC GTCACCCCAGCAGCCGGTGTCTGTGCCCGGGAGAAGCCCCAGGGCTCTGTGGCGGCGCCCC **AAGCATGCCAAGCTCTCGCTGCAGGAGCTGACGTGGAAGATGAGCGTGCGGGACTGCGCTT** GAGCAGCTGCGGCCCTCCTTCCTACTCAGCTCTGAGGCCCAGCCTGACTGGCGCTCGG AGGCTCGTGGAGACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGG GAGGAGGAGACACAGACCCCCGTCGCTGGTGCAGCTGCTCCGCCAGCACAGCAGCCCCC GGCTCCAGGCACAACGAACGCCGCTTCCTCAGGAACACCCAAGAAGTTCATCTCCCTGGGG 1321 1321 1561 1621 1741 1741 1801 1021 1021 1081 1081 1141 1141 1201 1201 1261 1261 1381 1381 1441 1441 1501 1501 1561 1621 1681 1681 1801 1861 1861 1921 1921 901 961 961 ò 셤 요 ò g ò 요 δý g ò g ò g à g ò g ò ద δ g ŏ g ò ద õ g ò g ò 셤 Qγ 셤 ò ŏ

셤

ð

ò

셤 ò ద ò ద ò 음 ò g ö g ò 셤 ò g ŏ 셤 ò 음 å 윤 8 유 ò

ò

```
62 CCCGCGATGCCGCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCAGCCACTAC 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      122 GGGAGGTGCTGCCGCTGGCCACGTTCGTGCGGCGCCTGGGGCCCCAGGGCTGGCGGCTG 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241 cccreegacecacecccccccccccccccccrccrrcceccaegrercreccreage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2 CACGCGTCCGGGCAGCGCTGCGTCCTGCTGCGACGTGGGAAGCCCTGGCCCCGGCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 CACGCGTCCGGGCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121 cécéaderecreccerreccacerrecrerecresecerresesecresesers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 362 ITCGGCTTCGCGCTGCTGGACGGGCCCGCGGGGGCCCCCCGAGGCCTTCACCACCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGCGCAGCTACCTGCCCAACACGGTGACCGACGCACTGCGGGGGAGCGGGGGCGTGGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 3798;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE 3798 BP; 613 A; 1310 C; 1213 G; 662 T; 0 OTHER
                                                                                                                                       30
                                                                                                                      OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 2848; DB 22;
Pred. No. 0.00e+00;
0; Mismatches 0;
                                                                                                                                                                                                  PROCR APPLICATION DATA:
APPLICATION NUMBER: US 08/873,039
FILING DATE: 11-JUN-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/751,189
FILING DATE: 15-NOV-1996
ATTORNEY AGENT INFORMATION:
NAME: Oleski, Nancy A.
                                                                                                                                                            APPLICATION NUMBER: US/08/951,733
FILING DATE: 16-OCT-1997
CLASSIFICATION: 435
  SEE: Amgen Inc.
: One Amgen Center Drive
Thousand Oaks
                                                                                                                                                                                                                                                                                                                         REFERENCE/DOCKET NUMBER: A-43:
TELECOMMUNICATION INFORMATION:
TELEPHORE: (805) 447-6504
TELEFAX: (805) 499-8011
INFORMATION FOR SEQ ID NO: 19:
SEQUENCE CHARACTERISTICS:
                                                                                                         COMPUTER: IBM PC Compatible OPERATING SYSTEM: PC-DOS/MS-
                                                                                                                                                                                                                                                                                                               REGISTRATION NUMBER: 34,688
                                           COUNTRY: USA
ZIP: 91320-1789
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                            : 3798 base pairs
nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 100.0%;
Best Local Similarity 100.0%;
Matches 2848; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                        STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                             LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MOLECULE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 පු
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                        2340
                                                                                                                                                                                                                                                                                                 2340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2640
                                                     2100
                                                                                                          2160
                                                                                                                                    2160
                                                                                                                                                                                                                                             2280
                                                                                                                                                                                                                                                                                                                             2400
                                                                                                                                                                                                                                                                                                                                                        2400
                                                                                                                                                                                                                                                                                                                                                                                   2460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2700
                                                                                                                                                              GCCCAGGACCCGCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGAC 2220
                                                                                                                                                                                                                                                                                                                                                                                                                                                   1981 GTCGTGGGAGCCAGAACGTTCCGCAGAGAAAAGAGGGCCGAGCGTCTCACCTCGAGGGTG
                                                                                                                                                                                                                                                                     2401 CACCTGCAGGAGCAGCAGCCGCTGAGGGATGCCGTCGTCGTCGAGGAGAGCTCCTCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <u> ACGCTGCTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCGG</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CACGCGAAAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGGACGGCTGCTCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AACTTGCGGAAGACAGTGGTGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGGCT
 GTCGTGGGAGCCAGAACGTTCCGCAGAGAAAAGAGGGCCGAGCGTCTCACCTCGAGGGTG
                                                                   TCTGTGCTGGGCCTGGACGATATCCACAGGCCCTGGCGCACCTTCGTGCTGCGTGTGCGG
                                                                                                                                                                          ACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACACG
                                                                                                                                                                                                                                 2221 ACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACACG
                                                                                                                                                                                                                                                                                                                                                                                 CACCTGCAGGAGACCAGCCCGCTGAGGGATGCCGTCGTCATCGAGCAGAGCTCCTCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                     AATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGCATCAGGGGCAAGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 19, Application US/08951733
Sequence 19, Application US/08951733
GENERAL INFORMATION:
APPLICANT: Harrington, Lea A.
APPLICANT: Robinson, Murray O.
TITLE OF INVENTION: NOVEL GENES ENCODING TELOMERASE PROTEINS NUMBER OF SEQUENCES: 44
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   77 2
US-08-951-733-19 STANDARD; DNA; UNC; 3798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2821 TITGITCAGAIGCCGGCCCACGGCCTAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2821 TTTGTTCAGATGCCGGCCCACGGCCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2761
                                                                                                         2101
                                                                                                                                                                                        2161
                                                                                                                                                                                                                  2221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                2461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2761
1981
                                                                                                                                                             2161
                                                                                                                                                                                                                                                                                                                                                                                2401
                                                                                                                                                                                                                                                                                                                                                                                                                                     2461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
```

ö

Gaps

ö

61 9 300

361 360 421

480 481

180 241 240 301 US-08-951-733-13-01.rnp

TICCTGCACTGGCTGATGAGTGTACGTCGTCGAGCTGGAGCTCAGG GCAGAGGTCAGGCAGCATCGGGAAGCCAGGCCCGCCCTGCTGACG GACGATATCCACAGGCCTGGCGCACCTTCGTGCTGCGTGTGCGG CTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCACC TTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGGTGCAGCTG TTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGTGCAGCTG SCAGAGGTCAGGCAGCATCGGGAAGCCAGGCCCGCCCTGCTGACG **ATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTAC** ACGITCCGCAGAGAAAAAGAGGGCCGAGCGICTCACCTCGAGGGTG STGCTCAACTACGAGCGGGGGGGGCGCCCCGGCCTCCTGGGCGCC AGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACACG PATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCC FCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCT AGCCCGCTGAGGGATGCCGTCGTCGAGCAGCAGAGCTCCTCCCTG SGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGTG

```
958
                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                  유
                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
  888888888888888888888
                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                         유
                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
2641 CGGGACGGCTGCTCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCACC 2700
                   APPLICANT: Cech, Thomas R.
APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Morin, Gregn B.
APPLICANT: Morin, Gregn B.
APPLICANT: Harley, Calvin B.
APPLICANT: Harley, William
ITILE OF INVENTION: Telomerase Reverse Transcriptase
                                                                                                                                                                                                                                                                                                                                                                                    ZIP: 94111-3834
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IS POPPY DISK
COMPUTER: IS POPPY DISK
COMPUTER: IS POPPY DISK
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION UNMER: US/08/911,312
FILLNG DATE: 14-AUG-1997
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, Eighth Floor
CITY: San Francisco
STATE: California
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 015389-002500US
                                                                                                                                                                   BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAX-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-RAY-1997
PRIOR APPLICATION DATE:
APPLICATION NUMBER: US 08/912,951
FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/915,503
FILING DATE: 14-AUG-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                        T 3
US-08-911-312-1 STANDARD; DNA; UNC; 7029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-OCT-1996
PRIOR APPLICATION DATA:
                                                                                                              2821 TTGTTCAGATGCCGGCCCACGCCTAT 2848
                                                                                                    2822 TITGIICAGAIGCCGGCCCACGGCCIAI 2849
                                                                                                                                                                                               Sequence 1, Application US/08911312
Sequence 1, Application US/08911312
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME: Elnhorn, Gregory P.
REGISTRATION NUMBER: 38,440
REFERENCE/DOCKET NUMBER: 015
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION DATA:
                                                                                                                                                                             XXXXXX
                                                                                                   සි
à
                                        ò
                                                           셤
                                                                                ö
                                                                                                                        ö
```

```
1137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1018 GCTGGTGGCCCGAGTGCTGCAGAGGCTGTGCGAGCGCGCGGAAGAAGAACGTGCTGGCCTT 1077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1438 GGGTGCGAGGAGGCGCGGGGGCAGTGCCAAGTCTGCCGTTGCCCAAGAGGCCCAG 1497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         63 CGCGATGCCGCGCGCCTCCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCAGCCATACCG 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            718 CGCGTCGACGCAGCGCTGCGTCCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCC 777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3 cécériccesechecerecrecrecrecreches and a ceceresechececes es 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              123 GGAGGTGCTGCCGCTGGCCACGTTCGTGCGCGCCCTGGGGCCCCAGGGCTGGCGGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 183 GCAGGGGGGACCCGGGGGCTTTCCGCGCGCTGGTGCCCAGTGCCTGGTGTGGCGTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     243 CTGGGACGCCCGCCCCCCCCCCCCTTCCGCCAGGTGTCCTGCTGCCTGAAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             603 CGCTGCCACTCAGGCCCGGCCCCCCCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 778 GGGGATGCCGCGCGCTCCCGGTGCCGTGCGCTCCCTGCTGCGCAGCCACTACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       838 CGAGGTGCTGCCGCTGGCCACGTTCGTGCGGCGCCTGGGGGCCCCCAGGGCTGGCGGCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1078 CGGCTTCGCGCTGCTGGACGGGGCCCCGGGGGCCCCCCGAGGCCTTCACCACCAGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1258 TGTGCTGGTGGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 543 TGTGCTGGTGGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1318 GGTGCCACTCAGGCCCGGCCCCGCCACACGCTAGTGGACCCCCGAAGGCGTCTGGGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1378 CGAACGGGCCTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              363 CGCCTTCGCGCTGCTGGACGGGGCCCCGCGGGGGCCCCCCCGAGGCCTTCACCACCACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                        NAME/KEY: CDS
LOCATION: 782..4177
OTHER INFORMATION: /product= "human telomerase reverse of the Normation: transcriptase (hTRT)"
OTHER INFORMATION: /note= "CDNA contained in plasmid OTHER INFORMATION: pGRN121"
SEQUENCE 7029 BP; 1416 A; 2122 C; 2051 G; 1440 T; 0 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                        Length 7029
                                                                                                                                                                                                                                                                                                                                                                                                                    Score 2840; DB 22; Length 70
Pred. No. 0.00e+00;
0; Mismatches 3; Indels
INTERPRISE (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 7029 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
. TOPOLOGY: linear
MOLECULE TYPE: CDNA
FEATURE.
                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 99.7%;
Best Local Similarity 99.9%;
Matches 2843; Conservative
```

ö

1558   GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
0 1 4 1 0 2 9 6 3 6 3 6 3 6 3 6 3 6 3 6 3 6 3 6 3 6

```
1922
                                                                                                                                                 2102
                                                                                                                                                                                                                                    2222
                                                                                                                                                                                                                                                                                                                       2342
                                                                                                                                                                                                                                                                                                                                                                                                          2462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2762
 2637
                                           2697
                                                               1982
                                                                                    2757
                                                                                                        2042
                                                                                                                             2817
                                                                                                                                                                     2877
                                                                                                                                                                                          2162
                                                                                                                                                                                                               2937
                                                                                                                                                                                                                                                         2997
                                                                                                                                                                                                                                                                             2282
                                                                                                                                                                                                                                                                                                  3057
                                                                                                                                                                                                                                                                                                                                            3117
                                                                                                                                                                                                                                                                                                                                                                2402
                                                                                                                                                                                                                                                                                                                                                                                     3177
                                                                                                                                                                                                                                                                                                                                                                                                                              3237
                                                                                                                                                                                                                                                                                                                                                                                                                                                  2522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2822
                                                                                                                                                                                                                                                                                                                                                                                    GGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCGGGCCTGCGGGCCTGTGTGCGGGCCTGGCGCCTGTGCGGCTGCGGGCTGCGGGCCTGGCGATATCCACAGGCCTGGCGCACCTTCGTGCTGCGTGTGCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                         CCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTACGT
                                                                                                                                        GIICAGCGIGCICCAACIACGAGCGGGCGCGCGCCCCGGCCTCCTGGGCGCCTC
                                                                                                                                                                                                                          CCAGGACAGGCTCACGGAGGTCATCGCCAGCATCAAACCCCAGAACACGTA
                                                                                                                                                                                                                                                                   GCGTCGGTATGCCGTGGTCCAGAAGGCCGCCATGGGCACGTCCGCAAGGCCTT
                                                                                                                                                                                                                                                                                                                                            CCACGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCA
                                                                                                                                                                                                                                                                                                                                                       GGGCAAGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AACCTICCICAGGACCCIGGICCGAGGIGICCCIGAGIAIGGCIGCGIGGIGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCCGCCCCCCGCCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGACAC
                                                                                                                                                                                                                                                                                                                                                                                                                              CAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGTGCG
                                                                                                                             GTTCAGCGTGCTCAACTACGAGCGGGCGCGCGCCCCCGGCCTCCTGGGCCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     150-224 STANDARD; DNA; UNC; 4015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGATGCCGCCCACGCCTAT
```

240

191

300

311

251

360

371

420

480

491

600 611 9 671

551

780

791

731

840

851

900

```
1032 CCCGGTGȚACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGGCAAGAGGAGCAGCTGCG 1091
                                                                                                                                                                                 GCCGCTGGCCACGTTCGTGCGGCGCCTGGGGCCCCAGGGCTGGCGGCTGGTGCAGCGCGG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  661 CTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCCCCGGGTGCGAG 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      372 GCTGCTGGACGGGCCCCGCGGGGCCCCCCGAGGCCTTCACCACCAGCGTGCGCAGCTA 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 721 GAGGCGGGGGCAGTGCCAGCCGAAGTCTGCCGTTGCCCAAGAGGCCCAGGCGTGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   781 IGCCCTGAGCCGGAGCGGACGCCCGTTGGGCAGGGGTCCTGGGCCCACCCGGGCAGGGAC
                                                                                                                                                                                                            792 IGCCCCTGAGCCGGAGCGGACGCCCTTGGGCAGGGGTCCTGGGCCCCACCCGGGCAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGTGGACCGAGTGACCGTGGTTTCTGTGTGTGTCACCTGCCAGACCCGCCGAAGAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           852 GCGTGGACCGAGTGACCGTGGTTTCTGTGTGTGTCACCTGCCAGACCCGCCGAAGAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          912 CACCICITIGGAGGGIGCGCICTCIGGCACGCCCACCCACCCAICCGIGGGCCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      961 GCACCACGCGGCCCCCCATCCACATCGCGGCCACGTCCCTGGGACACGCCTTGTCC
                                                                                                252 ACGGCCGCCCCCCCCCCCCCTCCTTCCGCCAGGTGTCCTGCTGAAGGAGCTGGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1021 CCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCG
         GCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGGCCACCCCCGCGATGCC
                                                                  GCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCAGCCACTACCGCGAGGTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCGAGTGCTGCAGAGGCTGTGCGAGCGCGCGCGAAGAACGTGCTGGCCTTCGGCTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCTGCTGGACGGGGCCCGCGGGGGCCCCCCGAGGCCTTCACCACCAGCGTGCGCAGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               541 GGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCTCGGCGCTGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   601 TCAGGCCCGGCCCCCCCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                       132
                                                                                                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
      12
                                                                  61
                                                                                                                     72
                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                      192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               421
                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ğ
                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note= "human telomerase reverse
transcriptase (hTRT) catalytic protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 2837; DB 21; Length 4015;
Pred. No. 0.00e+00;
0; Mismatches 0; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE 4015 BP; 663 A; 1363 C; 1275 G; 714 T; 0 OTHER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                 Townsend and Townsend and Crew LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REGISTRATION NUMBER: 36,429
REFERENCE/DOCKET NUMBER: 015389-002930US
TELECOMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 224:
SEQUENCE CHARACTERISTICS:
LENGTH: 4015 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                      STREET: Two Embarcadero Center, 8th Floor
                                                                  APPLICANT: Lingner, Joachim
APPLICANT: Lingner, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Chapman, Karen B.
APPLICANT: Harley, Calvin
APPLICANT: Harley, Calvin
APPLICANT: Andrews, William H.
TITLE OF INVENTION: Novel Telomerase
NUMBER OF SEQUENCES: 225
CORRESPONDENTE NICE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
CLASSIFICATION: 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product- "hTRT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION: 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
CLASSIFICATION 536
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US 08/724,643 FILING DATE: 01-OCT-1996 CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/854,050
FILING DATE: 09-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                United States of America
Sequence 224, Application US/08854050 Sequence 224, Application US/08854050 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            component,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME: Apple, Randolph T. REGISTRATION NUMBER: 36,4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity 100.0%;
Matches 2837; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: CDS
LOCATION: 56.3454
OTHER INFORMATION: OTHER INFORMATION: to other informati
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STATE:
```

1020

1092 GCCCTCCTTCCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGGA 1151

GCCCTCCTTCCTACTCAGCTCTCTGAGGCCCCAGCCTGACTGGCGCTCGGAGGCTCGTGGA

1081

ö

Gaps

ö

1 GCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCCCGCGATGCC 60

合

ŏ

```
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  United States of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    San Francisco
California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-08-912-951-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  XXXXXX
                                                                                                                                        2352
                                                                                                                                                                                                                                                       2472
                                                                                                                                                                                                                                                                                                             2532
                                                                                                                                                                                                                                                                                                                                                                  2592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2772
                             2232
                                                                                 2292
                                                                                                               2341
                                                                                                                                                                                                                           2461
                                                                                                                                                                                                                                                                                  2521
                                                                                                                                                                                                                                                                                                                                        2581
                                                                                                                                                                                                                                                                                                                                                                                             2641
                                                                                                                                                                                                                                                                                                                                                                                                                          2652
                                                                                                                                                                                                                                                                                                                                                                                                                                                    2701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2761
 2221
                                                       2281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESCIENCE OF SERVICE O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
g
                           8
8
8
                                                                          δ
                                                                                                          g
                                                                                                                                        Qγ
                                                                                                                                                             엄
                                                                                                                                                                                       οχ
                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                     Qγ
                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                     οy
                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2100
                                                                                                                                                                                                                                                                    1451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1991
                                                                                  GCTCTCGCTGCAGGAGCTGACGTGGAAGATGAGCGTGCGGGACTGCGCTTGGCTGCGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAAGTICCIGCACTGGCTGATGAGTGTGTACGTCGTCGAGCTGCTCAGGTCTTTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGCCGGTGTCTGTGCCCCGGGAGAAGCCCCAGGGCTCTGTGCGGGGGCCCCCGGAGGAGGA
                                                                                                                                                                                                                                       CACAGACCCCCGTCGCTGGTGCTGCTCCGCCAGCAGCAGCCCCTGGCAGGTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAGTGTCTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAGCGTGTCAACTACGAGCGGGGGGGCGCCCCGGCCTCTGGGCGCCTCTGTGCTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGCTACGACCATCCCCCCA
             GACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCGCCT
                                                                    GCCCCAGCGCTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCA
                                                                                                                           GTGCCCCTACGGGGTGCTCCTCAAGACGCACTGCCCGCTGCGAGCTGCGGTCACCCCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAGCCCAGGGGTTGGCTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCGGGCCCCAGGACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1681
                                                                    1201
                                                                                              1212
                                                                                                                           1261
                                                                                                                                                    1272
                                                                                                                                                                               1321
                                                                                                                                                                                                           1332
                                                                                                                                                                                                                                                                  1392
                                                                                                                                                                                                                                                                                              1441
                                                                                                                                                                                                                                                                                                                        1452
                                                                                                                                                                                                                                                                                                                                                                              1512
                                                                                                                                                                                                                                                                                                                                                                                                                                    1572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2112
             1141
                                        1152
                                                                                                                                                                                                                                       1381
                                                                                                                                                                                                                                                                                                                                                    1501
                                                                                                                                                                                                                                                                                                                                                                                                          1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2161
                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                 ద
                                                                                                                        셤
                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ద
                                        ò
                                                                                              ò
                                                                                                                                                     à
                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             οχ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
```

```
AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DIAGNOSTIC
                                                               2340
                                                                                                                              2400
                                                                                                                                                                                           2460
                                                                                                                                                                                                                                                       2520
                                                                                                                                                                                                                                                                                                                                                                                  2640
                                                                                                                                                                                                                                                                                                                                                                                                                                               2700
                                                                                                                                                                                                                        2471
                                                                                                                                                                                                                                                                                                                      2580
                                                                                                                                                                                                                                                                                                                                                   2591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2711
                                                            GCTCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCACCCACGCGAAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCTCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCACCCACGCGAAAAC
                                CAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCCACCACGCGTGCGCATCAGGGG
                                                                                                                                                                                                                                                                                                                       CAAGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCTCCACGCTGCTCTG
                                                                                                                                                                                                                                                                                                                                                                                    CAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGGATTCGGCGGGACGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUBUNIT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 1, Application 05/08/1251
GENERAL INFORMATION:
APPLICANT: Cech, Thomas R.
APPLICANT: Cheman, Raren B.
APPLICANT: Chapman, Karen B.
APPLICANT: Harley, Calvin
APPLICANT: Harley, Calvin
APPLICANT: Andrews, William H.
TILLE OF INVENTION: HUMAN TELOMERASE CATALYTIC SUB
TILLE OF INVENTION: THERAPEUTIC METHODS
NUMBER OF SEQUENCES: 335
CORRESPONDENCE ADDRESS:
ADDRESSEE: Twomsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, 8th Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1, Application US/08912951
1, Application US/08912951
INFORMATION:
```

491

420 431 540

551 900 611 999

671

720

780

731

840

791

```
CACAGACCCCCGTCGCTGGTGCAGCTGCTCCGCCAGCAGCAGCCCCTGGCAGGTGTA 1440
                 312 CCGAGTGCTGCAGAGGCTGTGCGAGCGCGGGGGGAAGAAGACGTGCTGGCCTTCGGCTTCGC 371.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCCCCGGGTGCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             972 GCACCACGCGGGCCCCCCACATCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1152 GACCATCTITCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTGCCCCGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1321 AGCCGGTGTCTGTGCCCGGGAGAAGCCCCAGGGCTCTGTGGCGGCCCCCCGAGGAGGA
                                              TCAGGCCCCGCCCCCCCACACGCTAGTGGACCCCCGAAGGCGTCTGGGATGCGAACGGGC
                                                                                                                                                                                                                                                                                                                 GAGGCGCGCGCGCAGTCCAGCCGAAGTCTGCCCGAAGAGGCCCAGGCCGTGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                       TGCCCCTGAGCCGGAGGGGCCCGTTGGGCAGGGGTCCTGGGCCCACCCGGGCAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGTGGACCGAGTGACCGTGGTTTCTGTGTGTGTCACCTGCCAGACCCGCCGAAGAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCACCACGCGGCCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCCTCCTTCCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1092 GCCTCCTTCCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1201 GCCCCAGCGCTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGCCCCTACGGGGTGCTCCTCAAGACGCACTGCCCGCTGCGAGCTGCGGTCACCCCAGC
                                                                                                           GGCICCCAGCIGCGCCTACCAGGIGIGCGGGCCGCCGCIGIACCAGCICGGCGCIGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              852 GCGTGGACCGAGTGACCGTGGTTTCTGTGTGGTGTCACCTGCCAGACCCGCCGAAGAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1141 GACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCGCAGGTTGCCCCGCT
                                                                                                                                                                       481 CCGCGTGGGCGACGTGCTGGTTCACCTGCTGGCACGCTGCGCGCCTCTTTGTGCTGGT
 1212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1381
                                                                                                           421
                                                                                                                                                                                                                                                                                                 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1332
                                                                                                                                                                                                                                    541
                                                                                                                                                                                                                                                                                                                                                              199
                                                                                                                                                                                                                                                                                                                                                                                                                       721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                            g
                                                                           ŏ
                                                                                                         g
                                                                                                                                                                     g
                                                                                                                                                                                                   à
                                                                                                                                                                                                                                    유
                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                                                                                                                                         ő
                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   음
                                                                                                                                          ò
                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCAGCTACCGCGAGGGGTCT 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12 GCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCCCGCGATGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCGCTGGCCACGTTCGTGCGGCGCCTGGGGCCCCCAGGGCTGGCGGCTGCAGCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301 CCGAGTGCTGCAGAGGCTGTGCGAGCGCGGGGGGAAAAAGGTGCTGGCCTTCGGCTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCCCGCGATGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGCGCTCCCCGCTGCCGAGCCGTGCGCTGCTGCGCAGCCACTACCGCGAGGTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note= "human telomerase reverse
transcriptase (hTRT) catalytic protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 4015;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: CDS
LOCATION: 56.3454
OCHER INFORMATION: / product= "hirr"
OTHER INFORMATION: / note= "human telomerase revers:
OTHER INFORMATION: transcriptase (hTRT) catalytic
OTHER INFORMATION: component"
SEQUENCE 4015 BP; 663 A; 1363 C; 1275 G; 714 T; 0 OTHER.
PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 2837; DB 22;
Pred. No. 0.00e+00;
0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                       015389-002600US
                                                                      PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                  APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
                                                                                                                                                                                                                                             CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-OCT-1996
CLASSIFICATION: 435
                         UMBER: US/08/912,951
14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                    NAME: Apple, Randolph T.
REGISTRATION NUMBER: 36,429
REFRENCE/DOCKET NUMBER: 01531
TELECOMMUNICATION INFORMATION:
TELEFAX: (415) 576-0200
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 4015 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                FILING DATE: 25-APR-1997
                CURRENT APPLICATION DATA: APPLICATION NUMBER: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 99.6%;
Best Local Similarity 100.0%;
Matches 2837; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                linear
                                                           CLASSIFICATION:
                                              FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ٦
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241
```

1020

960

900

911

851

1031

1080

1091

1140

a ò 셤 ö 요 ö a ò g ð 셤

1151 1200 1211 1260

1271

1320

```
2532
                                            2592
                                                         2641
                                                                                              2712
                                                                                                                        2772
                                                                                                                                     2821
      2521
                               2581
                                                                      2652
                                                                                  2701
                                                                                                            2761
                                                                                                                                    g
                             g
                                                        셤
                                                                      ò
                                                                                g
                                                                                              δý
                                                                                                          용
                                                                                                                                                                          Qγ
                                           ò
                                                                                                                        Ω
                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                       2400
                                                                                                                                                                                                                                                                         2100
                                                                                                                                                                                                                                                                                                   2160
                                                                                                                       CAAGTTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGGAGCTGTC 1860
                                                                                                                                                                          2291
CACAGACCCCCGTCGCCTGGTGCAGCTGCTCCGCCAGCACAGCAGCCCCTTGGCAGGTGTA 1451
                   CGGCTTCGTGCGGGCCTGCCTGCCCGGCTGGTGCCCCCCAGGCCTCTGGGGGCTCCAGGCCA
                                            GCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGACACCATCCCCCA
                                                                                                                                                                                                                                                                                                                                                           CAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCCACCACGCCGTGCGCATCAGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGCCTTCGTGCGGGCCTGCCTGCCCGCCTGGTGCCCCCAGGCCTCTGGGGCTCCAGGCA
                                     CAACGAACGCCGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAA
                                                               GCTCTCGCTGCAGGAGCTGACGTGGAAGATGAGCGTGCGGGACTGCGCTTGGCTGCGCAG
                                                                                                                CAAGTICCIGCACTGGTGATGAGTGTGTACGTCGTCGAGCTGCTCAGGTCTTTTTA
                                                                                                                                          CAGCGTGCTCAACTACGAGCGGGGGGGGGCCCCCGGGCCTCCTGGGGCGCCTTGTGCTGGG
                                                                                                                                                                                                                                                                               GCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGACCATCCCCCA
                                                                                                                                                                                                                                                                                                                                                                              TCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCCACGTCCGCAAGGCCTTCAAGAGCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                 GACCAGCCCGCTGAGGGATGCCGTCGTCATCGAGCAGGAGCTCCTCCTGAATGAGGCCAG
                                                                                                                                                                                                                      CTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGGAGC
                                                                                                                                                                                                                                               CAGAACGTTCCGCAGAGAAAAAGAGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGTT
                                                                                                                                                                                                                                                                                                  CCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCGGGCCCAGGACCC
                                                                                                                                                                                                                                                                                                                                                     CGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTGCAGGA
                                                                                                                                                                                                                                                                        2041
                                                                                                                                                                                                                                                                                                                                                                             2281
            1441
                         1452
                                     1501
                                                  1512
                                                              1561
                                                                           1572
                                                                                       1621
                                                                                                    1632
                                                                                                                1681
                                                                                                                             1692
                                                                                                                                          1741
                                                                                                                                                      1752
                                                                                                                                                                   1801
                                                                                                                                                                                1812
                                                                                                                                                                                             1861
                                                                                                                                                                                                          1872
                                                                                                                                                                                                                      1921
                                                                                                                                                                                                                                   1932
                                                                                                                                                                                                                                               1981
                                                                                                                                                                                                                                                           1992
                                                                                                                                                                                                                                                                                     2052
                                                                                                                                                                                                                                                                                                              2112
                                                                                                                                                                                                                                                                                                                                       2172
                                                                                                                                                                                                                                                                                                                                                    2221
                                                                                                                                                                                                                                                                                                                                                                 2232
                                                                                                                                                                                                                                                                                                                                                                                           2292
                                                                                                                                                                                                                                                                                                                                                                                                       2341
                                                                                                                                                                                                                                                                                                                                                                                                                    2352
                                                                                                                                                                                                                                                                                                                                                                                                                                2401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2472
                                                                                                                                                                                                                                                                                                  2101
                                                                                                                                                                                                                                                                                                                           2161
                                                                                                                                                                                                                                                                                                                                                                                                                                                         2461
                                                                                                                                                                                                                                                                                                                         g
            a
                                    g
                                                  go qo
                                                                                      q
                                                                                                    ò
                                                                                                                                         g
                                                                                                                                                                 g
                                                                                                                                                                                            g
                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                          οy
                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                  요
                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ď
                                                                           ò
                                                                                                                셤
                                                                                                                             δy
                                                                                                                                                      ò
                                                                                                                                                                               δ
                                                                                                                                                                                                          5
                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                           δy
                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                             ά
ö
                         à
```

```
2700
                                                                                                  2651
                                                                                                                                                                                                                         2760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           s for Detecting and
Reverse Transcriptase
GCTCCTGCGTTTGGTGATTTCTTGTTGGTGACACCTCACCTCACCCACGCGAAAAC
                                                                                                                                                                                                                           CITCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGTGAACTTGCGGAA
                                                                                                                                                                                                                                                                                                       GACAGTGGTGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGGCTTTTGTTCAGAT
                                                            CAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGGATTCGGCGGGACGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STREET: Two Embarcadero Center, Eighth Floor CITY: San Francisco STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Compositions for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ....Admura, Toru

APLICANT: Chapman, Karen B.
APLICANT: Morin, Gregg B.
APPLICANT: Harley, Calvin B.
APPLICANT: Andrews, William H.
TITLE OF INVENTION: Antisense Compositions for TITLE OF INVENTION: Inhibiting Telomerase Rev NUMBER OF SEQUENCES: 72
CORRESPONDENCE ANDRESS:
ADDRESSEE: TOWNSON'S
STREFT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
APPLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATION NUMBER: US 08/851,843
DATE: 06-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US/09/052,919
FILING DATE: 31-MAR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US 08/854,050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 1, Application US/09052919
Sequence 1, Application US/09052919
GENERAL INFORMATION:
APPLICANT: Cach, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Chapman, Karen B.
APPLICANT: Morin, Gregg B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-052-919-1 STANDARD; DNA; UNC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE:
Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-
                                                                                                                                                                                                                                                                                                                                                                                                                          2848
                                                                                                                                                                                                                                                                                                                                                                                    GCCGCCCACGCCTAT 2837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 06-MAY-
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                           2832 GCCGGCCCACGGCCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 31 CLASSIFICATION:
```

```
1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         971
                                                                                                                                   900
                                                                                                                                                                                       9
                                                                                                                                                                                                                                            720
                                                                                                                                                                                                                                                                                               780
                                                                                                                                                                                                                                                                                                                                                      840
                                                                                                                                                                                                                                                                                                                                                                                                          900
                                                                                                                                                                                                                                                                                                                                                                                                                                                             960
                                                                                                        551
                                                                                                                                                            611
                                                                                                                                                                                                                671
                                                                                                                                                                                                                                                                   731
                                                                                                                                                                                                                                                                                                                         791
                                                                                                                                                                                                                                                                                                                                                                              851
GCTGCTGGACGGGCCCCGCGGGGCCCCCCGAGGCCTTCACCACCAGCGTGCGCAGCTA 431
                                                   491
                                                                                                                                                                                                                                                       CACCICITITGEAGGGGGGGCGCTCTCTGGCACGCGCCACTCCCACCCATCCGTGGGCCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCCCAGCGCTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTGCCCCTACGGGGTGCTCCTCAAGACGCACTGCCCGCTGCGAGCTGCGGTCACCCCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CACAGACCCCGTCGCTGGTGCAGCTGCTCCGCCAGCACAGCAGCCCCTGGCAGGTGTA
                                         TCAGGCCCGGCCCCGCCACACACTAGTGGACCCCGAAGGCGTCTGGGATGCGAAGGGC
                                                                                                                                                                                                                                            CTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCCCCGGGTGCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGTGGACCGAGTGACCGTGGTTTCTGTGTGTCTCACCTGCCAGACCCGCCGAAGAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCACCACGCGGGCCCCCCATCCACATCGCGGCCACCATCCCTGGGACACGCCTTGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCCTCCTTCCTACTCAGCTCTCTGAGGCCCCAGCCTGACTGGCGCTCGGAGGCTCGTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CACAGACCCCCGTCGCCTGGTGCAGCTGCTCCGCCAGCACAGCAGCCCCTGGCAGGTGTA
                          GGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCTCGGCGCTGCCAC
                                                                                                                                                           Gecreceaecreceaecraceaegrereceeeccececreraceaecreeeceae
                                                                                                                                                                                                                 TCAGGCCCCGCCCCCCCCACACGCTAGTGGACCCCCGAAGGCGTCTGGGATGCGAACGGGC
                                                                                                                                                                                                                                                                                                 GAGGCGCGGGGGCAGTGCCAGCCGAAGTCTGCCGTTGCCCAAGAGAGGCCCAGGCGTGGCGC
                                                                                                                                                                                                                                                                                                                                                     TGCCCCTGAGCCGGAGCGCCCGTTGGGCAGGGGTCCTGGGCCCACCCGGGCAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                          GCGTGGACCGAGTGACCGTGGTTTCTGTGTGGTGTCACCTGCCAGACCCGCCGAAGAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTGCCCCTACGGGGTGCTCCTCAAGACGCACTGCCCCCTGCGAGCTGCGGTCACCCCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1452
                                                                                                                                                                                                                                                                   672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1441
                           421
                                                   432
                                                                              481
                                                                                                                                   541
                                                                                                                                                            552
                                                                                                                                                                                       601
                                                                                                                                                                                                                 612
                                                                                                                                                                                                                                            661
                                                                                                                                                                                                                                                                                               721
                                                                                                                                                                                                                                                                                                                         732
                                                                                                                                                                                                                                                                                                                                                     781
                                                                                                                                                                                                                                                                                                                                                                              792
                                                                                                                                                                                                                                                                                                                                                                                                          841
                                                                                                                                                                                                                                                                                                                                                                                                                                   852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                           g
                                                                                                                                 9
                                                                                                                                                                                     g
                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                          δλ
                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                     ŏ
                                                                                                        ò
                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGAGTGCTGCAGAGGCTGTGCGAGCGCGCGCGAAAACGTGCTGGCCTTCGGCTTCGC 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCAGCCACTACCGCGAGGTGCT 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGACCCGGCGGCTTTCCGCGCGCGCTGGTGCCCTGGTGTGCGTGCGTGCCTTGGGACGC 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTGCTGGACGGGGCCCCGCGGGGCCCCCCGAGGCCTTCACCACCAGCGTGCGCAGCTA 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCGCTGGCCACGTTCGTGCGCCCTGGGGCCCCCAGGGCTGGCGGCGGCGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCAGCGCTGCGTCCTGCTGCGACGTGGGAAGCCCTGGCCCCGGGCCACCCCCGCGATGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 4015;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OTHER INFORMATION: /product= "human telomerase reverse OTHER INFORMATION: transcriptase (hTRT)" SEQUENCE 4015 BP; 663 A; 1363 C; 1275 G; 714 T; 0 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 2837; DB 24;
Pred. No. 0.00e+00;
0; Mismatches 0;
                                                                                                              APPLICATION NUMBER: US 00/913/303
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/974,549
FRING DATE: 19-NOV-1997
PRIOR APPLICATION NUMBER: US 08/974,584
FILING DATE: 19-NOV-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: WO PCT/US97/17618
FILING DATE: 01-OCT-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: WO PCT/US97/17618
FILING DATE: 01-OCT-1997
ATTORNEY AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                       015389-003600US
                    APPLICATION NUMBER: US 08/911,312
PILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/912,951
FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/915,503
                                                                                                                                                                                                                                                                                                    Match 99.6%;
Local Similarity 100.0%;
FILING DATE: 09-MAY-1
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LOCATION: 56..3454
OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches 2837;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
```

g

9 9 9 9

8 8

셤

g

õ

g

ö

윰

ö

```
CTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGAACTTGCGGAA
                                                                                                                                     CAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGGATTCGGCGGGACGGCT
                     CAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCGGCGGGACGGGCT
                                                   GCTCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCACCCACGCGAAAAC
                                                                                  CTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGTGAACTTGCGGAA
                                                                                                                            GACAGTGGTGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGGCTTTTGTTCAGAT
                                                                                                                                                                                                                                                                                                                               Catalytic Subunit Gene
                                                                                                                                                                                                                                                                                                                                                              귭.
                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE: Hamilton, Brook, Smith & Reynolds, STREET: Two Militia Drive STREET: Lexington STATE: MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REGISTRATION NUMBER: 32,227
REFERENCE/DOCKET NUMBER: WH197-11p4AM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 14 AUG-1997

PRIOR PAPLICATION NUMBER: US 60/055,762

PRIOR PAPLICATION DATE: 30 PPLICATION DATE: 01-AUG-1997

PRIOR APPLICATION NUMBER: US 60/047,151

FILING DATE: 20-MAX-1997

PRIOR APPLICATION NUMBER: US 60/047,151

PRIOR APPLICATION NUMBER: US 750

FILING DATE: 20-MAX-1997

APPLICATION NUMBER: US 60/038,750

FILING DATE: 20-FEB-1997

ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                 US-09-026-981-35 STANDARD; DNA; UNC; 4023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US/09/026,981
FILING DATE: 20-FEB-1998
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/064,322
FILING DATE: 30-OCT-1997
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                             APPLICANT: Counter, Christopher M. APPLICANT: Meyerson, Matthew APPLICANT: Weinberg, Robert A. TITLE OF INVENTION: Telomerase Cat. NUMBER OF SEQUENCES: 52 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                               Sequence 35, Application US/09026981 Sequence 35, Application US/09026981 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELECOMMUNICATION INFORMATION
TELEPHONE: 781-861-6240
TELEFAX: 781-861-9540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Granahan, Patricia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                               GCCGCCCACGCCTAT 2848
                                                                                                                                                                    2821 GCCGGCCCACGGCCTAT 2837
                                                                                                                                                                                                                                                                                                                                                                                                      USA
                                                                                                                                                                                                                                                                                                                                                                                                               02173
                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME:
                                                                                                                                                                                                                                             XXXXXX
                    2592
                                                             2652
                                                                                  2701
                                                                                                       2712
                                                                                                                          2761
                                                                                                                                              2772
                                                                                                                                                                                        2832
2581
                                         2641
                                                                                                                                                                                                                       g
                    ò
                                       g
                                                            ò
                                                                                 셤
                                                                                                       à
                                                                                                                         셤
                                                                                                                                              οχ
                                                                                                                                                                                                                                                                                                                                                                                          2100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2471
                                                                                                                                                                              1800
                                                                                                                                                                                                                                                                                                                                                   2040
                                                                                                                                                                                                                                                                                                                                                                                                                                     2160
                                                                                                                                                                                                                                                                                                                                                                                                                                                        2171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2591
         1931
                                                                                                                                                                                                                                                                                                                               1991
                                                                                                                                                                                                                                                                                                                                                                        2051
                                                                                                                                                                                                                                                                                                                                                                                                                2111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2291
                                                                                                                                    CAAGIICCIGCACIGGCIGAIGAGIGIGIACGICGICGAGCIGCICAGGICIIITITA 1740
                                                   GCTCTCGCTGCAGGAGCTGACGTGGAAGATGAGCGTGCGGGACTGCGCTTGGCTGCGCAG 1620
                                                                                                        CGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTGCAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGCCCAGGGGTTGGCTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGGC
                                                                                                                                                                              TGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAGTGTCTGGAG
                                                                                                                                                                                         CTTCATCCCCAAGCCTGACGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGAGC
                                                                                                                                                                                                                                                                                                                                                                                            CAGCGTGCTCAACTACGAGCGGGCGCGCCCCCGGCCTCTCTGGGCCCTCTGTGCTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                     CCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCGGGCCCAGGACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGACACCATCCCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCCTTCAAGAGCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTGCAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGTGCGCATCAGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAAGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCTCTCACGCTGCTCTG
                                                                                                                                                                                                                                                                CAGAACGTTCCGCAGAGAAAAGAGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GACCAGCCCGCTGAGGGATGCCGTCGTCATCGAGCAGAGCTCCTCCCTGAATGAGGCCAG
                                                                                                                                                                                                                                                                                                                                                                        1992
                                                                                                                                                                                                                                                                                                                                                                                            2041
                                                                                                                                                                                                                                                                                                                                                                                                                2052
                                                                                                                                                                                                                                                                                                                                                                                                                                    2101
                                                                                                                                                                                                                                                                                                                                                                                                                                                         2112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2521
                                                                        1572
                                                                                                                 1632
                                                                                                                                     1681
                                                                                                                                                         1692
                                                                                                                                                                             1741
                                                                                                                                                                                                  1752
                                                                                                                                                                                                                        1801
                                                                                                                                                                                                                                            1812
                                                                                                                                                                                                                                                                                     1872
                                                                                                                                                                                                                                                                                                                               1932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2401
                              1512
                                                                                            1621
                                                                                                                                                                                                                                                                1861
                                                                                                                                                                                                                                                                                                          1921
                                                                                                                                                                                                                                                                                                                                                    1981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2292
          1501
                                                   1561
                                                                                           셤
                                                                                                                                                                            g
                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                 οχ
                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ٥y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
            요
                              ò
                                                 셤
                                                                       ö
                                                                                                                  õ
                                                                                                                                 a
                                                                                                                                                        δ
                                                                                                                                                                                               ò
```

```
ö
                                                                                                                             190
                                                                                                                                                        250
                                                                                                                                                                                  310
                                                                                                                                                                                                                                   430
                                                                                                                                                                                                                                                 482
                                                                                                                                                                                                                                                           490
                                                                                                                                                                                                                                                                          542
                                                                                                                                                                                                                                                                                       550
                                                                                                                                                                                                                                                                                                    602
                                                                                                                                                                                                                                                                                                                610
                                                                                                                                                                                                                                                                                                                              662
                                                                                                                                                                                                                                                                                                                                         670
                                                                                                                                                                                                                                                                                                                                                      722
                                                                                                                                                                                                                                                                                                                                                                   730
                                                                                                                                                                                                                                                                                                                                                                                782
                                                                                                                                                                                                                                                                                                                                                                                             790
                                                                                                                                                                                                                                                                                                                                                                                                          842
                                                                                                                                                                                                                                                                                                                                                                                                                      850
                                                                                                                                                                                                                                                                                                                                                                                                                                                910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         970
                                                                                        122
                                                                                                    130
                                                                                                                 182
                                                                                                                                          242
                                                                                                                                                                    302
                                                                                                                                                                                              362
                                                                                                                                                                                                           370
                                                                                                                                                                                                                       422
                                                                                                                                                                                                                                                                                                                                                                                                                                   902
                                                                                                                                                                                                                                                                                                                                                                                                                                                             962
                                                               62
                                                                           70
                                                    Gaps
                                                                     GGGACCCGGCGGCTTTCCGCGCGCTGGTGGCCTGGTGCCTGGTGTGCGTGCCTGGGACGCGTGCCCTGGGACGCGTGCCCTGGGACGCGTGCCTGGACGCGTGCCTGGTGCCTGGTGCCTGGTGCCTGGTGCCTGGTGCCTGGTGCCTGGTGCCTGGTGCCTGGTGCCTGGTGCCTGGTGCCTGGTGCCTGGTGCCTGGTGCCTGGTGCCTGGTGCCTGGGACG
                                                                                                                                                                                             CCCGAGTGCTGCAGAGGCTGTGCGAGCGGCGCGAAGAACGTGCTGGCCTTCGGCTTCGGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCGCTTCG
                                                                                                                                                                                                                                                                          GGCAGCGCTGCGTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCCGGCGATGC
                                                                                                                  TGCCGCTGGCCACGTTCGTGCGCGCCTGGGGCCCCAGGGCTGCGGGCTGCAGCGCG
                                                                                                                                                                                                                                                                                                                                                      CCTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCCCCGGGTGCGA
                                                                                                                                                                                                                                                                                                                                                                                                         CTGCCCCTGAGCCGGACGCCCGTTGGGCAGGGGTCCTGGGCCCCACCCGGGCAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCACCTCTTTGGAGGTGCGCTCTCTGGCACGCGCCACTCCCATCCGTGGGCCGCC
                                                                                                                                                                     ö
                                                   Indels
                                       Length
                          OTHER
                          0
                                     Score 2834; DB 23;
Pred. No. 0.00e+00;
0; Mismatches 2;
                          .,
H
                         715
                         ö
                         1277
                         ວ່
                   TOPOLOGY: linear
SEQUENCE 4023 BP; 668 A; 1363
 pairs
                                     99.5%;
larity 99.9%;
Conservative
      TYPE: nucleic acid
STRANDEDNESS: single
base
4023
                                     Match
Local Similarity
Les 2836; Conser
                                     Query Mat
Best Loca
Matches
                                                                           11
                                                                                                                 123
                                                                                                                              131
                                                                                                                                                                                                                                                                                                                                                                                                                                   843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         911
                                                              m
                                                                                        63
                                                                                                    71
                                                                                                                                          183
                                                                                                                                                      191
                                                                                                                                                                    243
                                                                                                                                                                                 251
                                                                                                                                                                                              303
                                                                                                                                                                                                           311
                                                                                                                                                                                                                       363
                                                                                                                                                                                                                                   371
                                                                                                                                                                                                                                                423
                                                                                                                                                                                                                                                            431
                                                                                                                                                                                                                                                                          483
                                                                                                                                                                                                                                                                                      491
                                                                                                                                                                                                                                                                                                   543
                                                                                                                                                                                                                                                                                                                551
                                                                                                                                                                                                                                                                                                                            603
                                                                                                                                                                                                                                                                                                                                         611
                                                                                                                                                                                                                                                                                                                                                     663
                                                                                                                                                                                                                                                                                                                                                                  671
                                                                                                                                                                                                                                                                                                                                                                               723
                                                                                                                                                                                                                                                                                                                                                                                           731
                                                                                                                                                                                                                                                                                                                                                                                                        783
                                                                                                                                                                                                                                                                                                                                                                                                                     791
                                                                                                                                                                                                                                                                                                                                                                                                                                               851
                                                                                                                                                                                                                                                                                                                                                                                                                                                            903
888888
                                                               윱
                                                                           ò
                                                                                        윱
                                                                                                    ö
                                                                                                               g
                                                                                                                             ò
                                                                                                                                        셤
                                                                                                                                                      δ
                                                                                                                                                                පු
                                                                                                                                                                                õ
                                                                                                                                                                                          8
                                                                                                                                                                                                         ò
                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                         οχ
                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                            8 6
                                                                                                                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                                                                                 원
                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
```

1090 1142 1150 1202 1210 1262 1322 1382 1442 1450 1502 1510 1562 1570 1622 1630 1690 1742 1750 1802 1862 1870 1922 1982 1030 1082 1270 1682 1810 1930 2050 GCTTCATCCCCAAGCCTGACGGCTGCGGCCCATTGTGAACATGGACTACGTCGTGGGAG GGCCCTCCTTCCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGG AGTGCCCCTACGGGGTGCTCCTCAAGACGCACTGCCCGCTGCGAGCTGCGGGTCACCCCAG ACAACGAACGCCGCTTCCTCAGGAACACCCAAGAAGTTCATCTCCCTGGGGAAGCATGCCA AGCTCTCGCTGCAGGAGCTGACGTGGAAGATGAGCGTGCGGGGCTGCGCTTGGCTGCGCA GGAGCCCCAGGGGTTGGCTGTTCCCGCCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGG CCCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGC ACGGCTTCGTGCGGGCCTGCCTGCCGGCTGGTGCCCCCCAGGCCTCTGGGGCTCCAGGC 1211 1331 1691 1743 1031 1143 1151 1203 1263 1271 1323 1383 1391 1443 1451 1503 1511 1563 1571 1623 1631 1683 1751 1803 1811 1863 1871 1923 1931 1983 1991 1023 1083 1091 963 ద g & g ő ద ŏ a à g ŏ g ò g ŏ g οy 셤 à 셤 Oy Db δ DD QY 9 9 οy 셤 ò g ò g Ω 윱 ò

셤 õ 셤 ò 셤 à . අ õ g ò 셤 ŏ

```
7; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12 GCAGCGCTGCGTCCTGCTGCGCACCTGGGGAAGCCCTGGCCCGGGCCACCCCGGGGATGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGACCCGGCGCGTTTCCGCGCGNTGGTGGCCCANTGCNTGGTGCGTGCCCTGGGANGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61 GGGGGTCCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCAGCTACCGCGAGGTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 GCAGCGCTGCGTCCTGCTGCGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCCCGCGGATGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 4029;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 2521; DB 21; Length 40 Pred. No. 0.00e+00; 0; Mismatches 77; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCATION: 1..4029
OTHER INFORMATION: /note= "preliminary sequence for OTHER INFORMATION: human TRT cDNA insert of OTHER INFORMATION: plasmid pGRN121"
SEQUENCE 4029 BP; 687 A; 1342 C; 1255 G; 720 T; 25 OTHER.
                                                                                            SUFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA: US/08/854,050 FILING DATE: 09-MAY-1997 CLASSIFICATION: 536 PROOF APPLICATION: 536
CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Crew
                        STREET: Two Embarcadero Center, 8th Floor
CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                        015389-002930US
                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
CLASSIPICATION: 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18 APR-1997
                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION: 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996
                                                                                                                                                                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-WAY-1997
CLASSIFICATION: 536
                                                               of America
                                                                                                                                                                                                                                                                                                                                                                                                               ATTOREY/AGENT INFORMATION:
NAME: Apple, Randolph T.
REGISTRATION UNBER: 36,429
REERENGE/DOCKET NUMBER: 0153
TELEPOMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
INFORMATION FOR SEQ ID NO: 173:
SEQUENCE CHARACTERISTICS:
LENGTH: 4029 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                   Randolph T. 36,429
                                                             COUNTRY: United States ZIP: 94111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 88.5%;
Best Local Similarity 97.0%;
Matches 2754; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             single
                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                       CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          192
 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                           2402
                                                                                                                                                       2282
                                                                                                                                                                                                         2342
                                                                                                                                                                                                                                                                                      2410
                                                                                                                                                                                                                                                                                                                                        2470
                                                                                                                                                                                                                                                                                                                                                                                                                                           2590
                                                               GCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACCCCGTGCGCATCAGGG 2522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2043 TCAGCGTGCTCAACTACGAGCGGGGGGGGGCGCCCGGGCTCTGGGCGCCTCTGTGCTGG 2102
                         2051 TCAGCGIGCTCAACTACGAGCGGGGGGGGCCCCGGCCTCCTGGGCGCCTCTGTGCTGG 2110
                                                                                                                                                                                 2290
                                                                                                                                                                                                                                                                                                              AGACCAGCCGCTGAGGGATGCCGTCGTCGAGCAGCAGCTCCTCCCTGAATGAGGCCA 2462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCGGCGGGACGGGC 2650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGTGAACTTGCGGA 2762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGACAGIGGIGAACTICCCIGIAGAAGACGAGGCCCIGGGIGGCACGCCTITIGIICAGA 2822
                                                                                                                                                                     GTCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCCACGTCCGCAAGGCCTTCAAGAGCC
                                                                                                                                                                                                                                                            ACGICITCIACCITGACAGACCICCAGCCGIACAIGCGACAGIICGIGGCICACCIGCAGG
                                                                                                                                                                                                                                                                          GCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGTGCGCATCAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                 GCAAGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCTCCACGTGCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                           GCAAGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCCACGCTGCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGCTCCTGCGTTTGGTGATTTCTTGTTGGTGACACCTCACCTCACCCACGCGAAAA
                                                                                                    CGCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGCGTACGACCATCCCCC
                                                                                                                                                       AGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCCAGAACACGTACTGCGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGGATTCGGCGGGACGGGC
                                                   GCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCGGGGCCCAGGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGCCGGCCCACGGCCTAT 2840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGCCGGCCCACGCCTAT 2848
                                                                                                                                                      2223
                                                                                                                                                                                2231
                                                                                                                                                                                                         2283
                                                                                                                                                                                                                                                           2343
                                                                                                                                                                                                                                                                                                             2403
                                                                                                                                                                                                                                                                                                                                      2411
                                                                                                                                                                                                                                                                                                                                                                                        2471
                                                                                                                                                                                                                                                                                                                                                                                                                                          2531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2823
                                                                           2111
                                                                                                    2163
                                                                                                                             2171
                                                                                                                                                                                                                                 2291
                                                                                                                                                                                                                                                                                    2351
                                                                                                                                                                                                                                                                                                                                                                2463
                                                                                                                                                                                                                                                                                                                                                                                                                   2523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2763
                                                 2103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2771
```

QQ

õ

g

ò g οχ g

ò g ò ద g ŏ g δ

ò

; 9

ANGGCNGCCCCCC CCGAGTGCTGCAAL
------------------------------

g &	1315 AGCCGGTGTCTGTGCCCGGAGAAGCCCCAGGGCTCTGTGGCGGCCCCCGAGGAGGA 	.GGA 1374      .  GGA 1391
q	1375 ACACAGACCCCCGGTGGTGGTGCTGCTGCTGCCAGCAGCACCAGCAGCCCTGGCAGG	T 143
Qy	1392 -CACAGACCCCGTCGCTGGTGCAGCTGCTC	145
qa a	bb 1435 AcGGCTTCGTCGGGCCTGCCTGCCGGCTGGTGCCCCCAGGCCTCTGGGGCTCCAG	GC 1494
ž 8	1495 ACAACGACGCGCTTCCTCAGGAACACCAAGAAGTTCATCATCCTGGGGAAGCATG	A 155
δλ	151	7
qq	15	-
Qy	1571 AGCICICGCIGCAGGAGCIGACGIGGAAGAIGAGCGIGCGGGACIGCGCIIGGCIGC	Å 163
QQ	161	67
δŏ	1631 GGAGCCCAGGGGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCC	G 169
a :	19	TT 1734
ž i	1091 CCAMGITCCIGCACIGGIGAGGAGGIGIGICACGICGAGCIGCICAGGICITICI	C/T 1.1
ŝ ŝ	1/35 AIGICACGGARACCACGITICAAARAAAAAACAGGCICITITICIACCGGAACAGGITITI 	GGA 1794 111 GGA 1810
. 5	1795 GRANGTTGCAAAGCAATCACAAAGCAATCACAAAGAAAAAAAAA	185
š č	181	i io
đ	1855 GGGAAGCTCAGGCAGCATCGGGAAGCCAGGCCCGCCCTGCTGACGTCCAGA	20 191
δλ	y 1871 CGGAAGCAGAGCTCAGGCAGCATCGGGAAGCCAGGCCCGCCC	CC 193
ති	1915 GCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGG	GAG 1974
δλ	1931 GCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGG	3 199
qq	b 1975 CCAGAACGTICCGCAGAGAAAGAGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACT	GT 2034
δλ	1991 CCAGAACGTICCGCAGAGAAAAAGGGGCCGAGCGICTCACCTCGAGGGTGAAGGCAC	T 205
đ	2035 TCAGCGIGCTCAACTACGAGCGGGGGGGGCGCCCCGGCCTCCTGGGCGCCTCTGTGC	TGG 2094
δλ	2051 rcadcerceracracadecesececescecescerereses	36 21
qq	2095 GCCTGGAGGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCGGGCCCAGG	ACC 2154
δy	2111 GCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCTGTGTGCGGGCCCAGG	217
g	2155 CGCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGGTACGACACCATCC	CC 22
δý	2171 CGCCGCCTGAGCTGTATTTGTCAAGGTGGATGTGACGGGCGCGTACGACGCACCATCC	c 223
qa	2215 AGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACACGTACTGCG	3C 227
δy	2231 AGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACACGTACTGCG	c 229
qq	2275 GTCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCC	CC 2334
δλ	2291 GICGGIATGCCGIGGICCAGAAGGCCGCCCATGGGCACGICCGCAAGGCCTICAAG	c 235
QQ	2335 ACGICICIAGACAGACCICCAGCCGIACAIGCGACAGIICGIGGCICACAGCICC	AGG 2394
δλ	2351 ACGICICIACCIIGACAGACCICCAGCCGIACAIGCGACAGIICGIGGCICACCIGC	3 241
qq	D 2395 ANAACAGCCGCTGAGGGATGCCGTCGTCATCGAGCAGAGCTCCTCCTGAATGAGGC	CA 2454

US-08-951-733-13-01.rnp

```
Query Match 88.5%;
Best Local Similarity 97.0%;
Matches 2754; Conservative
                                                                                                                                                   NAME/KEY:
LOCATION: 1..4029
                                                                                                                                  MOLECULE TYPE: CDNA
                                                                                                                            linear
                                                                                                                                                                                                                                            음
                                                                                                                                                                                                                                                                           유
                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                           염
                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                            유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
  δ
                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
2411 AGACCAGCCGGTGAGGGATGCCGTCGTCGAGCGAGAGCTCCTCCTGAATGAGGCCA 2470
                                                                                                                                  2755 AGACAGIGGIGAACTICCCIGIAGAAGACGAGGCCCIGGGIGGCACGGCITIIGIICAGA 2814
                        TGCTCCTGCGTTTGGTGGATTTTCTTGTTGGTGACACCTCACCTCACCCACGCGAAAA
                                                                                                                                                          CCTTCCTCAGGACCCTGGTCCCGAGGTGTCCCTGAGTATGGCTGCGTGGAGTTGCGGGA
                                                                                         SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/851,843 FILING DATE: 05-MAY-1997 CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                           ALUNESSEE: Townsend and Townsend and Crew LLP STREET: Two Embarcadero Center, 8th Floor CIIY: San Francisco
                                                                                                                                                                                                                                                                         US-08-851-843-173 STANDARD; DNA; UNC; 4029
                                                                                                                                                                                                                                                                                                                      APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Nakamura, Toru
APPLICANT: Morin, Gregg B.
APPLICANT: Harley, Calvin
APPLICANT: Harley, Calvin
APPLICANT: Andrews, William H.
TITLE OF INVENTION: Novel Telomerase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                  STATE: California
COUNTRY: United States of America
                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPOTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IEM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
                                                                                                                                                                                                                                                                                                  Sequence 173, Application US/08851843
Sequence 173, Application US/08851843
                                                                                                                                                                                                                                  2831 TGCCGGCCCACGGCCTAT 2848
                                                                                                                                                                                                                         2815 TGCCGCCCACGCCTAT 2832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION: 536
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ZIP: 94111
                                                                                                                                                                                                                                                                                    XXXXXX
                                                                                                                                         2651
                                                         2515
                                                                         2531
                                                                                         2575
                                                                                                         2591
                                                                                                                         2635
                                                                                                                                                                         2711
                                                                                                                                                                                                         2771
                                                                                                                                                          2695
                                                                         õ
                                                                                        g
                                                                                                         ö
                                                                                                                         g
                                                                                                                                                        g
                                                                                                                                                                                         셤
                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                          á
                                         ö
                                                        셤
                                                                                                                                         ò
                                                                                                                                                                         à
                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                          ò
```

```
360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61 GCGCGCTCCCCGCTGCCGTGCGCTCCCTGCTGCGCAGCCACTACCGCGAGGTGCT 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121 GCCGCTGGCCACGTTCGTGCGCCCCTGGGGCCCCAGGGCTGGCGGCTGGTGCAGGCGGG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         132 GCCGCTGGCCACGTTCGTGCGCGCCTGGGGCCCCAGGGCTGCGGGCTGCTGCTGCGGG 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12 GCAGCGCTGCGTCCTGCTGCGCACCGGCGAAGCCCTGGCCCGGCCACCCCCGGGGAAGCC 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         72 ecececrococorocos de consecuencia de la consecuencia della de
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301 CCGAGTGCTGCANANGCTGTGCGANCGCGGCGCGAANAACGTGCTGGCCTTCGGCTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361 GCTGCTGGACGGGCCCCGCGGGGCCCCCCGAGGCCTTCACCACCAGCGTGCGCAGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 GCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGGCCACCCCGCGATGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181 GGACCCGGCGCGTTTCCGCGCGGTGGTGGCCCANTGCNTGGTGTGCGTGCCCTGGGANGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             492 cceceregeceaceacerecreerreacreerecreerecreerecreerrarrerererre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     541 GGNTCCCAGCTGCGCCTACCANGTGTGCGGGCCGCCGCTGTACCAGCTCGGCGCTGCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    601 TCAGGCCCGGCCCCGCCACACGCTANTGGACCCGAANGCGTCTGGGAT--CCAACGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481 CCGCGTGGGCGACGACGTGCTGGTTCACCTGCTGGCACGCTGCGCGCTTTTGTGTGCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 4029;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 2521; DB 21; Length 40:
Pred. No. 0.00e+00;
0; Mismatches 77; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION: /note= "preliminary sequence for OTHER INFORMATION: human TRT cDNA insert of OTHER INFORMATION: plasmid porN121" SEQUENCE 4029 BP; 687 A; 1342 C; 1255 G; 720 T; 25 OTHER.
                                                                                                                                                                                                                                                                                                                 015389-002930US
                         08/724,643
APPLICATION NUMBER: US 08/724, FILING DATE: 01-0CT-1996 CLASSIFICATION: 536 ATTORNEY AGENT INFORMATION: NAME: APPle, Randolph T. REGISTRATION NUMBER: 36,429 REFERENCE/DOCKET NUMBER: 0153 TELECOMMUNICATION INFORMATION: TELEFONE: (415) 576-0200 INFORMATION FOR SEQ ID NO: 173: SEQUENCE CHARACTERISTICS: LENGTH: 4029 base pairs TYRE: nucleic acid STRANBENESS: single
```

; 9

	1975 1991 2035 2051		2231 2275 2291 2335	2395 ANAACAGCCCGCTGAGGGATGCCGTCGATCGAGGGAGGTCCTCCTGAATGAGGCCA 24  [	2575 2591 2635 2651 2711 2755 2771 2771
6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6		99 99 99 99	40 40 40 40 40 40 40 40 40 40 40 40 40 4		8 8 8 8 8 8 8 8
Db 659 CTGGAACCATAGCGTCAGGGAGCCGGGGTCCCCTGGGC-TGCCAGCCCCGGGTGCGAG 717	Qy         852 GCGTGGACCGCAGTGACCGTGGTGTCGTCAGCCTCCCAGACCCGCCGAAGAGC         911           Db         898 CACCTCTTTGGAGGGTGCGCTCTCTGGCACCCCACCCCA	DD   1017 CCCGGTGTACGCCGAGACCAAGCACTTCCTCAGGCGACAAGNA-CACTGCGN 1075	1152 GACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCGCAGGTTGCCCCGCCT  1195 GCCCCAGCGNTACTGGCAAATGCGGCCCTGTTTCTGGAGCTGCCAGGTTGCCCCGCCT  1212 GCCCCAGCGCTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCA  1212 GCCCCAGCGCTACTGGCAATGCGGCCCCTGTTCTGGAGCTGCTTGGGAACCACGCGCA  1255 GTGCCCTACTGGCAATGCGGCCCCTTTCTGGAGCTGCTTGGGAACCACGCGCA  1272 GTGCCCTACTGGCGTTTCTCAAAAACCGCACCCCAAGCTGCGGAGCTGCGGTCACCCCAGC  1272 GTGCCCTACTGGGGTGTTCCTCAAAGACCACTGCCCCAAGCTGCGGTCAACCCCAAGCCCCAACCCCAAGCCCCAACCCCAACCCCAACCCCAACCCCAACCCCAACCCC	1315   AGCCGGTGTCTGTGCGGGGAAGCCCCAGGGTTCTGGCGGCCCCCGAGGAGGAGGAGAGCAGGAGGAGGAGGAGG	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

```
APPLICANT: Cech, Thomas R.
APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Nakamura, Toru
APPLICANT: Morin, Gregg B.
APPLICANT: Harley, Calvin B.
APPLICANT: Andrews, William
TITLE OF INVENTION: Telomerase Reverse Transcriptase
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                  ADDRESSEE: Townsend and Townsend and Crew LLP STREET: Two Embarcadero Center, Eighth Floor CITY: San Francisco STATE: California COUNTR: USA ZIP: 94111-3834 COMPUTER READABLE FORM: WEDIUM TYPE: Floppy disk COMPUTER: IBM PC COMPATIBE: OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE/DOCKET NUMBER: 015389-002500US TELECOMMUNICATION INFORMATION:
                                      RESULT 10
ID US-08-911-312-18 STANDARD; DNA; UNC; 3855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION 5730
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-007-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/85,017
PRIOR DATE: 25-APR-1997
PRIOR DATE: 06-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER. CONTENT OF STRING DATE: 14-AUG-1997
PRIOR APPLICATION DATE: WS 08/915,503
FILING DATE: 14-AUG-1997
ATTORNEY/AGENT INFORMATION:
NAME: Einhorn, Gregory P.
REGISTRATION NUMBER: 38-46-000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/912,951
                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US/08/911,312
FILING DATE: 14-AUG-1997
                                                                                          Sequence 18, Application US/08911312
Sequence 18, Application US/08911312
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEPHONE: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 18:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGIH: 3855 base pairs
2831 TGCCGGCCCACGGCCTAT 2848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: CDS
LOCATION: 56..2476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 14 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY:
                                                                  XXXXXX
ò
```

```
1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               961 GCACCACGGGGCCCCCCATCCACATGGGGCCACCACGTCCCTGGGACACGCCTTGTCC 1020
                                                                                                                                                                                            180
                                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                                                                                                  480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CACCICITIGGAGGGIGCGCICICIGGCACGCGCCACICCCACCCATCCGIGGGCCGCCA 960
                                                                                                                                                                                                                   191
                                                                                                                                                                                                                                                                 251
                                                                                                                                                                                                                                                                                                                                                                                    420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCCCCGGGTGCGAG 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGGCGCGGGGGCAGTCCCGAAGTCTGCCGTTGCCCAAGAGGCCCAGGCGTGGCGC 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         912 CACCICITIGGAGGGIGCGCICICIGGCACGCGCCACICCCACCCCAICCGIGGGCCGCCA 971
                                                                                                                                             61 GCGCGCTCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCAGCCACTACCGCGAGGTGCT 120
                                                                                                                                                          371
                                                                                                                                                                                                                                                                                                                                                                                                          431
                                                                                                                                                                                                                                                                                                                                                                                                                                                          491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             851
                                                                                                 9
                                                                                                                      12 GCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCCACCCCCGCGATGCC 71
                                                                        0; Indels 182; Gaps
                                                                                                                                                                                                                                                                                                                                    GCGTGGACCGAGTGACCGTGGTTTCTGTGTGTCACCTGCCAGACCGGCCGAAGAAGC
                                                                                                                                                                                           121 GCCGCTGGCCACGTTCGTGCGGCGCCTGGGGCCCCAGGGCTGGCGGCTGGTGCAGCGCGG
                                                                                                                                                                                                                                                                                        GCTGCTGGACGGGCCCCGCGGGGCCCCCCGGAGGCCTTCACCACCAGCGTGCGCAGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                 432 ccrecccaacacegreacceaccacreceeeeeeeecereceeecrecrece
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGCCCCTGAGCCGGACGCACGCCCGTTGGGCAGGGGTCCTGGGCCCCACCCGGGCAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                852 GCGTGGACCGAGTGACCGTGGTTTTCTGTGTGTGTCACCTGCCAGACCCGCCGAAGAAGC
                                                                                                1 GCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCCGCGGATGCC
                                                                                                                                                                                                                                          541 GGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCTCGGCGCTGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           601 TCAGGCCCGGCCCCGCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               481 CCGCGTGGGGGACGTGCTGGTTCACCTGCTGGCACGCTGCGCGCCTTTTGTGCTGGT
                                                  Length 3855;
OTHER INFORMATION: /product= "hrrr"
OTHER INFORMATION: /note= "clone #712562"
SEQUENCE 3855 BP; 651 A; 1300 C; 1226 G; 678 T; 0 OTHER.
                                                 DB 22;
                                              Score 2444; DB 22;
Pred. No. 0.00e+00;
0; Mismatches 0
                                              Query Match 85.8%;
Best Local Similarity 93.6%;
Matches 2655; Conservative
                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   901
  ឧ
                                                                                                                                            g
                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                g
                                                                                                                       ð
                                                                                                                                                                   ρý
                                                                                                                                                                                          g
                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
```

2052 CAGCGIGCICAACTACGAGCGGGGGGGGGGCGCCCCGGGCTCCIGGGCGCCTCTGTGCTGGG 211	Db 2101 CCTGGACGATATCCACAGGCCTGGCGCACCTTCGTGCTGTGCGTGTGCGGCCCAGGACCC 2160	Db 2161 GCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTCACGGGCGCGTACGACACCATCCCCCA 2220	Db 2221 GGACAGGCTCACGGAGGTCATCGCCAGCATCAAACCCCAGAACACGTACTGCGTGCG	Db 2281 TCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCCTTCAAGAGCCA 2340	Db 2341 CGTC	Db 2344 2344 Oy 2412 GACCAGCCGCTGAGGGATGCCGTCGTCATCGAGCAGCAGCACCTCCTCCTGAATGAGGCCAG 2471	Db 2344 2344 Oy 2472 CAGTGGCCTTTCGTACGCTTCATGTGCCACCACGCCGTGCGCATCAGGGG 2531	Db 2345CTACGTCCAGGGGATCCCGCAGGCTCCATCTCTCACGCTGCTCTG 2398	Db 2399 CAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCGGCGGGACGGGT 2458	Db 2459 GCTCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCACCGCGAAAAC 2518	Db 2519 CTTCCTCAGGACCCTGGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGAACTTGCGGAA 2578	Db 2579 GACAGTGGTGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGCTTTTGTTCAGAT 2638	Db 2639 GCCGCCCACGGCCTAT 2655 .	RESULT 11 ID US-08-912-951-4 STANDARD; DNA; UNC; 3855 BP.	DT Sequence 4, Application US/08912951 CC Sequence 4, Application US/08912951 CC GENERAL INFORMATION:	CC APPLICANT: Cech, Thomas R. CC APPLICANT: Lingner, Joachim CC APPLICANT: Nakamura, Toru CC APPLICANT: Chapman, Karen B.	CC APPLICANT: Morin, Gregg B. CC APPLICANT: Harley, Callvin H. CC APPLICANT: Andrews, William H. CC TITLE OF INVENTION: HUMAN TELOMERASE CATALYTIC SUBUNIT: DIAGNOSTIC AND	TITLE OF INVENTION: THERAPEUTIC METHODS NUMBER OF SEQUENCES: 335
	1021 CCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCG 1080 	GCCCTCCTTCCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCCTCGAGGCTCGTGGA	GACCICCITICITACICAGOICTICIGAGGCCCAGGCCIGGCCICGGGACGCICGGGCCICGGGCCICGGGCCICGGGCCICGGGCCICGGGCCICGGGCCICGGGCCICGGGCCICGGGCCICGGGCCICGGCCCICGGCCCICGGCCCICGGCCCICGGCCCICGGCCCICGGCCCICGCCCGCCCCGCCCCGCCCCGCCCCCC	GCCCCAGCGCTACTGGCAATGCGGCCCTGTTTCTGGAGCTGCTTGGGAAACCACGCGCAAGCGCAAGCGCCAAGCGGCCCCTGTTTCTGGAGCTGCTTTGGGAAACCACGCGCAAGCGCCCCTGTTTCTGGAGCTGCTTGGGAAACCACGCGCAAGCGGCCCCTGTTTCTGGAAGCGGCAAATGCGGCCCCTGTTTCTGGAAGCTGGTTAGGAAACCACGCAGCAGCAAATGCGGCCCCCTGTTTTCTGGAACTAGCTTGGGAAACCAACAGCAAAAACGAAAAAAAA	GTGCCCCTACGGGGTGCTCCTCAAGACGCACTGCCGGTGCGAGTGCGGTTACCCCAGC	1321 AGCCGGTGTCTGTGCCCGGGAGAAGCCCCAGGGTCTGTGGCGGCCCCCGAGGAGGAGGA 1380 	CACAGACCCCGTCGCCTGGTGCAGCTGCTCCGCCAGCACAGCAGCCCCTGGCAGGTGTA 14	GGGCTTCGTGCGGGCCTGCCTGGGCCGGTGGTGCCCCCAGGCCTCTGGGGCTCCAGGCA	CAACGAACGCCGCTTCCTCAGGAACACCCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAA 1		GAGCCCAGGGGTTGGCTGTGTTCCGCCCGCAGACCGTCTGCGTGAGGAGATCCTGGC 168	CAAGTICCTGCACTGGCTGATGAGTGTGTACGTCGAGCTGCTCAGGTCTTTTA 1   1   1   1   1   1   1   1   1   1	IGTCACGGAGACCACGTITCAAAAGAACAGGCTCTTITICIACCGGAAGAGIGICTGGAG 18 	1801 CAAGTIGCAAAGCATIGGAAICAGACACTGAAGAGGGTGCAGCTGCGGGAGCTGTC 1860 	1861 GGAAGCAGAGGTCAGGCAGCATCGGGAAGCCAGCCCGCCTGCTGATCGAGACTCCG 1920 	1921 CTTCATCCCCAAGCCTGAGGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGGAGC 1980 	1981 CAGAACGTTCCGCAGAGAAAAGAGGCCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGTT 2040 	

```
GCCGCTGGCCACGTTCGTGCGGCGCCTGGGGGCCCCAGGGCTTGGCGGCTGGTGCAGCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1021
                                  132
                                                         181
                                                                                                                                               301
                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                961
             121
                                                                                                                                                                                           361
                                                                                                                                                                                                                                                                                                                              541
                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      අ
                                                                              δ
                                                                                                   g
                                                                                                                          ò
                                                                                                                                             셤
                                                                                                                                                                    ò
                                                                                                                                                                                          유
                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note= "nucleic acid sequence with an open reading frame encoding a delta-182 variant polypeptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Indels 182;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ouery Match 85.8%; Score 2444; DB 22; Length 3855; Best Local Similarity 93.6%; Pred. No. 0.00e+00; Matches 2655; Conservative 0; Mismatches 0; Indels 182;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: CDS
LOCATION: 56..2479
LOCATION: 56..2479
OTHER INFORMATION: /product= "delta-182 variant
OTHER INFORMATION: polypeptide"
SEQUENCE 3855 BP; 651 A; 1300 C; 1226 G; 678 T; 0 OTHER.
                                                   COMPUTER READABLE FORM:

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERAITIG SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patentin Release #1.0, Version #1.30

CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                       CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION 435
PRIOR APPLICATION: 435
PRIOR APPLICATION: 435
PRIOR SAPLICATION: 435
PRIOR SAPLICATION: 435
ATTORNEY AGENT INFORMATION:
NAME: APPLE Randolph T.
REGISTRATION NUMBER: 36,429
REFERENCE/DOCKET NUMBER: 36,429
REFERENCE/DOCKET NUMBER: 015389-002600US
TELECOMMUNICATION:
  and Crew
 E: Townsend and Townsend and Crew
Two Embarcadero Center, 8th Floor
                                                                                                                                APPLICATION NUMBER: US/08/912,951
FILING DATE: 14-AUG-1997
CLASSIFICATION: 435
PRIOR APPLICATION DATE: US 08/854,050
FILING DATE: 09-MAY-1997
CLASSIFICATION: 435
                                                                                                                                                                                                            PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
CLASSIPICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
                                 California
: United States of America
                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEPHONE: (415) 576-0200
TELEPRAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 3855 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                        San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCATION: 1..3855
OTHER INFORMATION:
OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOGY: linear MOLECULE TYPE: CDNA FEATURE:
ADDRESSEE:
STREET: TWG
CITY: San 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY:
                                 STATE: Ca
COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURE:
```

61 72

셤

ò

ô

12 GCAGCGCTGCTGCTGCTGCGCACGTGGGAAGCCCTGGCCCGGCCACCCCGCGGATGCC 71

1 GCAGCGCTGCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCCGGGATGCC

```
GCACCACGGGGCCCCCCATCCACGGCCACCACGTCGCACGGACACGCCTTGTCC 1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1092 GCCTCCTTCCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGGA 1151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1141 GACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCGCGCT 1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       972 GCACCACGCGGCCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTCC 1031
                                    240
                                                                                      300
                                                                                                                                                                                                                                                                                        540
                                                                                                                                                                                                                                                                                                                                          900
                                                                                                                                                                                                                                                                                                                                                                                          999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            251
                                                                                                              311
                                                                                                                                      CCGAGTGCTGCAGAGGCTGTGCGAGCGCGCGCGAAAACGTGCTGGCCTTCGGCTTCGC 360
                                                                                                                                                             371
                                                                                                                                                                                      420
                                                                                                                                                                                                                                       551
                                                                                                                                                                                                                                                                                                                                                                                                                  671
                                                                                                                                                                                                                                                                                                                                                                                                                                            661 CTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCCCCGGGTGCGAG 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                       791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    851
                                                                                                                                                                                                              431
                                                                                                                                                                                                                                                               491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          721 GAGGCGCGGGGGCAGTGCCAGCCGAAGTCTGCCGTTGCCCAAGAGGCCCAGGCGTGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1032 CCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGCCCCTGAGCCGGAGCGCCCGTTGGGCAGGGGTCCTGGGCCCCACCCGGGCAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCG
                                    GCTGCTGGACGGGGCCCGGGGGCCCCCCGGAGGCCTTCACCACCAGCGTGCGCAGCTA
                                                                                                                                                                                                  GGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCTCGGCGCTGCCAC
                                                                                                                                                                                                                                                                                                                                                                                          TCAGGCCCGGCCCCCCCCCACACGCTAGTGGACCCCCGAAGGCGTCTGGGATGCGAACGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCCTCCTTCCTACTCAGCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGGA
                                                                                                                                                                                                                                                               1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ద
```

a

	Db 2341 CGTC 2344           Qy 2352 CGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTGCAGGA 2411	Db 2344 2344 2344 2412 GACCAGCGCGCGGATGCCGTCATCGAGGAGGTCCTCCCTGAATGAGGCCAG 2471	2344	2472 CAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCGGTGCGCATCAGGGG	Db 2345CTACGICCAGIGCAGGGGAICCCGCAGGCICCAICCICCACCIGGICIG 2398 Qy 2532 CAAGICCTACGICCAGGGGAICCCGCAGGCICCAICCICCACCIGCIGG	Db 2339 CAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGGATTCGGCGGGACGGGCT 2458	Db 2459 GCTCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCACCCAGGGAAAC 2518	Db 2519 CTTCCTCAGGACCCTGGTCCCAGGTGTCCTGAGTATGGCTGGTGGTGAACTTGCGGAA 2578	Db 2579 GACAGTGGTGAACTICCCTGTAGAAGACGAGCCCTGGGTGGCACGGCTTTTGTTCAGAT 2638 	Db 2639 GCCGGCCCAGGCCTAT 2655 	RESULT 12 ID US-08-912-951-6 STANDARD; DNA; UNC; 4200 BP. AC XXXXXXX	Sequence 6, A Sequence 6, A GENERAL INFO		APPLICANT: APPLICANT: APPLICANT: TITLE OF I	TITLE OF I NUMBER OF CORRESPOND ADDRESSE	STREET: TWO Embarcadero CITY: San Francisco STATE: California COUNTRY: United States (		CC OPERATING SYSTEM: PC-DOS/MS-DOS CC SOFTWARE: Patentin Release #1.0, Version #1.30 CC CURRENT APPLICATION DATA: CC APPLICATION NUMBER: US/08/912,951	CC FILING DATE: 14-AUG-1997 CC CLASSIFICATION: 435
1201 GCCCCAGCGCTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCA 1260	1 GIGCCCTACGGGGTGCTCCTCAAGACGCACTGCCGCTGCGAGCTGCGGTCACCCCAGC	STRUCTURAL GUGGETGUTCU LA AGAC GUAC TRUCCEGUTGUGAG CITAG GAG TURAL AGAC GAG GAG TURAL GAG GAG GAG GAG GAG GAG GAG GAG GAG G	1332 AGCCGGTGTCTGTGCCCGGGGAAAGCCCCAGGGCTCTGTGGCGGCCCCCCGAGGAGGAGGA 1391	CACAGACCCCCGTCGCCTGGTCGCGCTCCCCCCGCCAGCACCTTTTTTTT	1441 CGGCTTCGTGCGGGCCTGCCTGGTGCCCCCAGGCCTCTGGGGCTCCAGGCA 1500	AAGTICAICICCTGGGGAAGCAIGCGAA 1 	GCTCTCGCTGCAGGAGCTGACGTGCAGGAGCGGGACTGCGGTTGGCTGCGCAG	GAGCCCAGGGGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGGC 	CAAGIICCIGCACIGGCIGAIGAGGIGIGAACGICGICGAGCIGCICCAGGICITITA	TGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTCTACCGGAAGAGTGTCTGGAG	1801 CAAGTIGCAAAGCAITGGAAICAGACAGCACTIGAAGAGGGIGCAGCTGGGGGAGCTGIC 1860 	1861 GGAAGCAGAGGTCAGGCAGCCAGGCCAGGCCCGCCTGCTGACGTCCAGACTCCG 1920	1921 CTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGGAGC 1980 	1981 CAGAACGTTCCGCAGAGAAAAGAGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGTT 2040 	2041 CAGCGTGCTCAACTACGAGCGGGGCGCGCCCCGGCCTCCTGGGCCTCTGTGCTGGG 2100	2101   CCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGGGGCCCCAGGACCC   2160	2161 GCCGCCTGAGCTGTACTTTGTCAAGGTGGATGGACGGCGCGTACGACCATCCCCCA 2220	2221 GGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACACGTACTGCGTGCG	2281 TCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCCTTCAAGAGCCA 2340

9 % a

626

3096

3216

3276

```
3277 TGCGCTCTCTGGCACGCGCCACTCCCATCCGTGGGCCGCCAGCACCACGCGGGGCCC 3336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1107 CAGCICICTGAGGCCCAGCCIGACTIGCCCTCGAGGCICGTGGAGACCAICTIITIIII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGGGAGAAGCCCCAGGGCTCTGTGGCGGCCCCCGAGGAGGAGGACACAGACCCCGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCTGGTGCAGCTGCTCCGCCAGCACAGCAGCCCTGGCAGGTGTACGGCTTCGTGCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGTGCTGGTTCACCTGCTGGCACGCTCCTTTGTGCTGGTGGTGGCTCCCAGCTGCGC
                                                                                                                                                           GCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGGCCTGGAACCATAGCGT
                                                                                                                                                                                                                                                           3157 GCGGACGCCCGTTGGCCAGGGGTCCTGGGCCCACCCGGGCAGGACGCGTGGACCGAGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                             TTCCAGGCCCTGGATGCCAGGACTCCCCGCAGGTTGCCCCGCCTGCCCCAGCGCTACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1167 TTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCGCCTGCCCCAGCGCTACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTACCAGGTGTGCGGGCGCCGCTGTACCAGCTCGGCGCTGCCACTCAGGCCCGGCCCCC
                                                                                                                                                                                                                               627 GCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGGCCTGGAACCATAGCGT
                                                                                                                                                                                                                                                                                                                   TGCCAGCCGAAGTCTGCCGTTGCCCAAGAGGCCCAGGCGTGGCGCTGCCCCTGAGCCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                 CCGTGGTTTCTGTGTGTGTCACCTGCCAGACCCGCCGAAGAAGCCACCTCTTTGGAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTCCCCCGGTGTACGCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1047 GACCAAGCACTICCICITACICCICAGGCGACAAGGAGCAGCIGCGGCCCTCCTICCIACI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAGCICICIGAGGCCCAGCCIGACIGGCGCICGGAGGCICGIGGAGACCAICITICIGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCTCCTCAAGACGCACTGCCGCTGCGAGCTGCGGTCACCCCAGCAGCCGGTGTCTGTGC
                                                                                                                 cerecrestreacereceaecerecececeretrinerserestesereceaecrese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCAGTGCCCCTACGGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2857
                                                                                                                 507
                                                                                                                                                                                                                                                         3037
                                                                                                                                                                                                                                                                                                                                                                                                   807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1347
                             2797
                                                                                                                                             2917
                                                                                                                                                                                                   2977
                                                                                                                                                                                                                                                                                                                 3097
                                                                                                                                                                                                                                                                                                                                                                                                                              3217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3817
 387
                                                                                                                                                                                                                                                                                                                                                                                                                                                          867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                             유
                                                         ò
                                                                                   g
                                                                                                                 ò
                                                                                                                                             셤
                                                                                                                                                                       ò
                                                                                                                                                                                                 g
                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                    Ω
                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                        원
                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CACGCCCCCCCCCCCCCCCCTCCTTCCGCCAGGTGGGCCTCCCCGGGGTCGGCGTCC 2556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2257 GGCAGCGCTGCGTCCTGCTGCGACGTGGGAAGCCCTGGCCCCGGCCACCCCCGGGATGC 2316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGGGGGCTCCCCGCTGCCGAGCCGTGCGCTCCTGCTGCGCAGCCACTACCGCGAGGTGC 2376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGCCGCTGGCCACGTTCGTGCGGCGCCTGGGGCCCCAGGGCTGGCGGCGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGACCCGGCGCTTTCCGCGCGCGCTGGTGCCCAGTGCCTGGTGCGTGTGCCTTGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCTGGGGTTGAGGGCGGCGGGGGAACCAGCGACATGCGGAGAGCAGCGCAGCGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCGCGGGGGCCCCCCCGAGGCCTTCACCAGCGTGCGCGAGCTACCTGCCCAACACGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CACGGCCGCCCCCCCCCTCCTTCCGCCAGGTG---------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCTGTGCGAGCGCGCGCGAAGAACGTGCTGGCCTTCGGCTTCGCGCTTGGTGGACGGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Indels 104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOLECULE TYPE: DNA (genomic)
SEQUENCE 4200 BP; 525 A; 1187 C; 1138 G; 644 T; 706 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 1497; DB 22;
Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                             36,429
FR: 015389-002600US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Mismatches
        FILING DAIE.
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
                                                                                                                                                                    APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                            APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-OCT-1996
CLASSIFICATION: 435
US 08/854,050
                                                                                                               APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
                                                                                                                                                                                                                                                              ATTORNEY AGENT INFORMATION:
NAME: Apple, Randolph T.
REGISTRATION UNIMBER: 36,429
REFERENCE/DOCKET NUMBER: 0153f
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
INFORMATION FOR SEQ ID NO: 6:
SEQUENCE CHARACTERISTICS:
LENGTH: 4200 base pairs
TYPE: nucleic acid
STRANDENNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 52.6%;
Best Local Similarity 94.0%;
Matches 1630; Conservative
                                                                   FILING DATE: 06-MAY-1
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                          PRIOR APPLICATION DATA:
                                                                                                                                                                                                                PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                      CLASSIFICATION:
                                                                                                                                           CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                             FOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       288
```

g

ò

g

ò

a

ò

g

ò 8 ð g ò ò

ò

3516

3396 1046

```
linear
                                                                                                                                                                                                                                                                                                                                    NAME/KEY: CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             323
  ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
3877 CCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAAGCTCTCGCTGCAGGA 3936
                               1527 CCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAAGCTCTCGCTGCAGGA
                                                            Sequence 1, Application US/09042460
Sequence 1, Application US/09042460
GENERAL INFORMATION:
APPLICANT: Morin, Gregg B.
APPLICANT: Allsopp, Richard
APPLICANT: Deplinb, Ronald
APPLICANT: Greenberg, Roger
TITLE OF INVENTION: Mouse Telomerase Reverse Transcriptase
NUMBER OF SEQUENCES: 101
                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: BM PC compatible
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/042,460
FILING DATE: 16 MAR-1998
                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, Eighth Floor
CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PALLO APPLICATION DATA:
PRICE APPLICATION UNBER: US 08/915,503
PILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
PRIOR APPLICATION NUBBER: W0 PCT/US97/17885
PRIOR APPLICATION DATA:
                                                                                                                  /T 13
US-09-042-460-1 STANDARD; DNA; UNC; 3496 BP
                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION: 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996
PRIOR APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
FILING DATE: 25-APR-1997
FRICK APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/911,312
FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US 08/912,951
FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                               USA
                                                                                                                                                                                                                                                                                                              COUNTRY:
                                                                                                                                       XXXXXX
                                                                                                                 RESULT
                    g
                                                             셤
                                                                                                                                      ò
                                                                                   ö
```

```
.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             263 ATCCCTGAAAGAGCTGGTGGCCAGGGTTGTGCAGAGACTCTGCGAGGGAACGAGGAAA 322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CACTAGTAGCGTGCGTGCGTAGCTACCCCAACACTGTTATTGAGACCCTGCGTGTCAGTGG 442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      83 CAGCCGATACCGGGAGGTGTGGCCGCTGGCAACCTTTGTGCGGCGCCTGGGGCCCGAGGG 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGTGCTGGCTTTTGGCTTTTGAGCTGCTTAACGAGGCCAGAGGCGGGCCTCCCATGGCCTT 382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  143 CAGGCGCCTTGTGCAACCCGGGGACCCGAAGATCTACCGCACTTTGGTTGCCCAATGCCT 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 825; DB 23; Length 3496;
Pred. No. 0.00e+00;
0; Mismatches 838; Indels 93;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCATION: 39.3404
OTHER INFORMATION: /Product- "mouse telomerase reverse OTHER INFORMATION: transcriptase (MTRI)"
SEQUENCE 3496 BP; 762 A; 998 C; 928 G; 808 T; 0 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: misc_feature
NAME/KEY: misc_feature
COCATION: 10..3435
COCATION: 10..3435
COCHER INFORMATION: /note= "mouse telomerase reverse
OTHER INFORMATION: transcriptase (mTRT) cDNA"
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OTHER INFORMATION: /note= "mouse telomerase reverse OTHER INFORMATION: trascriptase (mTRT) cDNA clone"
                                                                             APPLICATION NUMBER: US 08/979,742
FILING DATE: 26-NOV-1997
ATORNEY/AGENT INFORMATION:
NAME: Elihorn, Gregory P.
REGISTRATION NUMBER: 38,440
REFERNCE/DOCKET NUMBER: 015389-003110US
RELEPHONE: (415) 576-0200
TELEPHONE: (415) 576-0300
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 3496 base pairs
TYPE: nucleic acid
STRANBEDNESS: single
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/974,584
FILING DATE: 19-NOV-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/979,742
                                                                                                                                                                                                                                                                                                                                                                                                            MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 29.0%;
Best Local Similarity 67.1%;
Matches 1901; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: -
LOCATION: 1.3496
OTHER INFORMATION:
```

562 622 682 683	742 743 802 803	9 9 7 7	93	ω 4 ·	6 0	1150	1210 1223	1270 1283	1330	1345	1405 1463	1465 1523	1525 1583	158
CTGTGCTCTTATCTTCTGGTGCCCCCAGCTGTGCCTACCAGGTGTGGGTCTCCCCT	ACCCCTGGCCTTGCCATCTC			CICCACATCICTGCCTGTCACCACCCCGCCAAATGCCTTTCAGCTCAGGCCATTATTGA 	GACCAGACATTICCITIACITCCAGGGAGAIGGCCAAGAGCGTCTAAACCCCTCAIICCI	ACTCAGCAACCTCCAGCCTAACTTGACTGGGGCCAGGAGACTGGTGGAGATCATTTCT	GGGCTCAAGGCCTAGGACATCAGGACCACTGCAGGACACACCGTCTATCGCGTCGATA	CTGGCAGATGCGGCCCTGTTCCAACAGCTGCTGGTGAACCATGCAGAGTGCCAATATGT	GACTCCTCAGGTC 	TGCCCGGGAGAAGCCCCAGGGCTCTGTGGCGGCCCCCGAGGAGGAGGAGAAAAACCCCCG	GCACCICATGGATTTGCTCCGCCTGCACAGCAGTCCCTGGCAGGTATATGGTTTTCTTCG	GCCTGTCTCTGCAAGGTGGTGTCTGCTAGTCTCTGGGGTACCAGGCACAATGAGGGCCG [	CTTCTTTAAGAACTTAAAGAAGTTCATCTGGGGAAATACGGCAAGCTATCACTGCA	8
503 531 563 591 623	683 684 743 744		923	984	1031	1091	1151	1211	1271	1331	1346	1406	1466	1526
9 0 0 0 0	9 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	9 6 9 6	8 %	a &	oy Oy	oy Oy	op Oy	da ço	g ç	qa Ko	Oy Oy	oy Oy	g &	d Q

2360 2414 1645 1765 1823 1825 1885 1943 1945 2003 2005 2063 2065 2123 2125 2183 2185 2243 2245 2300 2305 2365 2425 2474 2485 2534 2545 2594 2605 2665 2654 2415 CAGCCCGCTGAGGGATGCCGTCGTCATCGAGCAGCAGCAGCAGCAGCAGCAGCAGCAGCAG TGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGTGCGCATCAGGGGCAAA TTTACGTTTTGTTGATGACTTTCTGTTGGTGACGCCTCACTTGGACCAAAAAACCTT 2244 GGAGGICATCGCCAGCAICAICAAACCCC---AGAACACGIACTGCGIGCGICGGIAIGC GTGCTATACGCAGTGCCAGGGCATCCCCCAGGGCTCCAGCCTATCCACCCTGCTGCAG TCTGTGTTTCGGAGACATGGAGAACAAGCTGTTTGCTGAGGTGCAGCGGGATGGGTTGCT CCTGTGCTACGGCGACATGGAGAAGCTGTTTGCGGGGGATTCGGCGGGACGGCTGCT CTGGCTGATGGACACATACGTGGTACAGCTGCTTAGGTCATTCTTTTACATCACAGAGAG GCCCAACGGCCTGCGGCCCATTGTGAACATGAGTTATAGCATGGGTACCAGAGCTTTGGG 1946 CAGAAGGAAGCAGCCCAGCATTTCACCCAGCGTCTCAAGACTCTTCAGCATGCTCAA GTACTTTGTTAAGGCAGATGTGACCGGGGCCTATGATGCCATCCCCCAGGGTAAGCTGGT GGAGGITGITGCCAAIAIGAICAGGCACTCGGAGAGCACGIACIGIATCCGCCAGIAIGC AGTGGTCCGGAGAGATAGCCAAGGCCAAGTCCACAAGTCCTTTAGGAGACAGGTCACCAC CCTCTCTGACCTCCAGCCATACATGGGCCAGTTCCTTAAGCATCTGCAGGATTCAGATGC CAGCCTGTTTGACTTCTTCCTGCACTTCCTGCGTCACAGTGTCGTAAAGATTGGTGACAG GGACCGTGTCCCCCCTGCAGAGCACCGTCTGAGGGAGGATCCTGGCTACGTTCCTGTT CATTGGAGTCAGGCAACACCTTGAGAGAGTGCGGCTACGGGAGCTGTCACAAGAGGAGGT CAGGCATCACCAGGACACCTGGCTAGCCATGCCCATCTGCAGACTGCGCTTCATCCCCAA 2475 2486 2546 2606 2426 1766 1824 1884 1886 1944 2184 2186 2246 2361 2366 2535 1584 1586 1644 1646 1704 1706 1764 1826 2004 2006 2064 2066 2124 2126 2306 2595 g 셤 qq 8 g g g g g δ g δy g δ g δ 9 δ g Q 셤 ò ò δλ δ g οy ŏ 원 ŏ à ò g ò ò οχ

US-08-951-733-13-01.rnp

```
Query Match
Best Local 3
                                                                                                                                                                                                                                                                                                                  2000
                                        971
                                                                                  1031
                                                                                                                                                                                        1820
                                                                                                                                                                                                                                                                          1940
                                                                                                                                                                                                                                                                                               1331
                                                                                                                                                                                                                                                                                                                                                                                                                         1511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1749
                                                                                                                                               1760
                                                                                                                                                                                                                                                     1271
                                                                                                                                                                                                                                                                                                                                                                                 1451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1687
                                                                                  g
                                                                                                                                                                   g
                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                     요
                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                             õ
                                                                                                                                              à
                                                                                                                                                                                      ò
                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                          ò
                                                                       CCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCACCCACGCGAAAACCTT 2714
                                                          AGTGGTGAACTTCCCTGTGGAGCCTGGTACCTGGGTGGTGGTGCACTCCATACCAGCTGCC
                     CCTCAGCACCCTGGTCCATGGCGTTCCTGAGTATGGGTGCATGATAAACTTGCAGAAGAC
                               2715 CCTCAGGACCCTGGTCCCGAGGTGTCCCCTGAGTATGCCTGCGTGAACTTGCGGAAGAC
                                                                                                                                                                                                                             APPLICANT: Counter, Christopher M.
APPLICANT: Meyerson, Matthew
APPLICANT: Weinberg, Robert A.
TITLE OF INVENTION: Telomerase Catalytic Subunit Gene and
NUMBER OF SEQUENCES: 52
                                                                                                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
ADDRESSEE: Hamilton, Brook, Smith & Reynolds, P.C. STREET: Two Militia Drive
CITY: Lexington
STATE: MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         T; 2 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                  SFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/026,981
FILING DATE: 20-FEB-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         G; 735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME: Granahan, Patricia
REGISTRATION NUMBER: 32,227
REFERENCE/DOCKET NUMBER: WHI97-11p4AM
TELECOMMUNICATION INFORMATION:
TELEPHONE: 781-861-640
TELEFAX: 781-861-9540
                                                                                                                                                        RESULT 14
ID US-09-026-981-36 STANDARD; DNA; UNC; 3346
                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 20-FEB-1998
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/064,322
FILING DATE: 30-OCT-1997
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US 60/055,762
FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/054,549
FILING DATE: 01-AUG-1997
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US 60/047,151
FILING DATE: 20-MAY-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/038,750
FILING DATE: 20-FEB-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TOPOLOGY: linear | SEQUENCE 3346 BP; 617 A; 1027 C; 965
                                                                                                                                                                                                      GENERAL INFORMATION:
                                                                                                                                                                                                Sequence 36, Application US/09026981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX: 781-861-9540
INFORMATION FOR SEQ ID NO: 36:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3346 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          nucleic acid
EDNESS: single
                                                                                                                        2835 GCCCACGCCT 2846
                                                                                                     2786 IGCICACIGCCI 2797
                                                                                                                                                                                                                                                                                                                                        USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                ZIP: 02173
                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                           Sequence 36,
                                                                                                                                                                             XXXXX
                                                            2726
2655
                    2666
                                                                                 2775
                                                           g
                                                                                 ò
                                                                                                    g
                                                                                                                                                                 셤
                                        ö
                                                                                                                        ò
```

```
1;
                                                                                                                                                                                                        1700 TGCACTGGCTGATGAGTGTGTACGTCGTCGAGCTGCTCAGGTCTTTTATGTCACGG 1759
                                                                                                                                                                                                                                                                              1150
                                                                                                                                                                                                                                                                                                                         1819
                                                                                                                                                                                                                                                                                                                                                                                              1390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGGCCAAGTTCC 1030
                                                                                                                1640 GGGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGGCCAAGTTCC 1699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2360 CCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTGCAGGAGACCAGCC 2419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2420 CGCTGAGGGATGCCGTCGTCATCGAGCAGCTCCTCCCTGAATGAGGCCAGCAGTGGCC 2479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1689 ACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCCACGCTGCTCTGCAGCCTGT 1748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2480 TCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGTGCGCATCAGGGGCAAGTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2300 CCGTGGTCCAGAAGGCCGCCCATGGGCCACGCCCCAAGGCCTTCAAGAGCCACGTCTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LO
                                                                                                                                                                                                                                                                                                      1151 AAAGCATTGGAATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGGGAGCTGTCGGAAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                          1211 AGGTCAGGCAGCATCGGGAAGCCCAGGCCCGCCTGCTGACGTCCAGACTCCGCTTCATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1880 AGGTCAGGCAGCATCGGGAAGCCAGGCCCGCCCTGCTGACGTCCAGACTCCGCTTCATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATATCCACAGGCCTGGCGCACCTTCGTGCTGCGTGTGCGGGCCCAGGACCCGCCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2180 AGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGACGACACCCCCAGGACAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1631 CCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCCTTCAAGAGCCACGTC----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2540 ACGTCCAGTGCCAGGGGATCCCGCAGGCTCCATCTTCTCTCCACGCTCTCTCGCAGCCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGGAGCCAGAACGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCCGCAGAGAAAAGGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGTTCAGCGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2120 ATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGGGGCCCAGGACCCGCCGCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGGATTCGGCGGGACGGGCTGCTCCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGCACTGGCTGATGAGTGTACGTCGTCGAGCTGCTCAGGTCTTTTTTATGTCACGG
                                                                                                                                                                                                                                                                           1091 AGACCACGITICAAAAGAACAGGCICITITICIACCGGAAGAGIGICIGGAGCAAGIIGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGCTGTACTTTGTCAAGGTGGATGTGACGGGGGGGGTACGACACCATCCCCCAGGACAGGC
                                               0; Indels 182;
  Length 3346;
Score 816; DB 23;
Pred. No. 0.00e+00;
0; Mismatches 0
28.7%;
larity 84.9%;
Conservative
                       Similarity
                          Best Local Simi
Matches 1027;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
```

ή:

Gaps

ò 윱 ò g ö g

ò

```
2409 GGAGACCAGCCCGCTGAGGGATGCCGTCGTCGTCGAGCAGCAGAGCTCCTCCCTGAATGAGGC 2468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1809 GAGCAAGTTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGGAGCT 1868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1929 CCGCTTCATCCCCAAGCCTGACGGCCTGCGCCGATTGTGAACATGGACTACGTCGTGGG 1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2109 GGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGTGCGGGGCCCAGGA 2168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2349 CCACGICICIACCIIGACAGACCICCAGCCGIACAIGCGACAGIICGIGGCICACCIGCA 2408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121 GAGCAAGTTGCAAAGCATTGGAATCAGACACTTGAAGAGGGGTGCAGCTGCGGGAGCT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301 AGCCAGAACGTTCCGCAGAGAAAAGAGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACT 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                               61 TTATGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTTCTACCGGAAGAGTGTCTG 120
                                                                                                                                                                                                                                                                                                                                                                                      2229 CCAGGACAGGCTCACGAGGTCATCGCCAGCATCATCAAACCCCAGAACACGTACTGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1989 AGCCAGAACGTTCCGCAGAGAAAAGAGGGCCGAGGGGTTCACCTCGAGGGTGAAGGCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     421 GGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCGGGCCCCAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2169 CCCGCCGCCTGAGGTGTACTTTGTCAAGGTGGAGGGGCGCGTACGACGACCATCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               541 CCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCCAGAACACGTACTGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361 GTTCAGCGTGCTCAACTACGAGCGGGCGCGCGCCCCGGCCTCCTGGGCGCCTCTGTGTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481 CCCGCCCCGGCTGAGCTGTACTTTGTCAAGGTGGAGAGGGGGCGGCGCGTACGACACCATCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAAACATGGACTACGTCGTGGG
                                                                                                                                                                                                                                                                                                          Score 767; DB 22; Length 2176;
Pred. No. 0.00e+00;
0; Mismatches 0; Indels 182;
                                                                                                                                                                                                           NAME/KEY: -
LOCATION: 1..2176
OTHER INFORMATION: /note= "clone 712562"
SEQUENCE 2176 BP; 432 A; 678 C; 642 G; 422 T; 2 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
INFORMATION FOR SEQ. ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 2176 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                        Query Match 26.9%;
Best Local Similarity 84.3%;
Matches 978; Conservative
                                                                                                                                                                          MOLECULE TYPE: CDNA
                                                                                                                                                                                              FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      299
                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Cech, Thomas R.
APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Chapman, Karen B.
APPLICANT: Morin, Gregg B.
APPLICANT: Andrews, William H.
APPLICANT: Andrews, William H.
TITLE OF INVENTION: THERAPEUTIC METHODS
NUMBER OF SEQUENCES: 335
CORRESPONDENCE ADDRESS:
                                                                                                                                GGACCCTGGTCCGAGGTGTCCCTGAGTATGCCTGCGTGGTGAACTTGCGGAAGACAGTGG 1928
                                                                                             2720 GEACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGAACTTGCGGAAGACAGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
PPLICATION NUMBER: US/08/912,951
FILING DATE: 14-AUG-1997
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE: Townsend and Townsend and Crew STREET: Two Embarcadero Center, 8th Floor CITY: San Francisco STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
NAME: Apple, Randolph T.
RAGESTRARTION NUMBER: 36,429
REFERRENCE/DOCKET NUMBER: 015389-002600US
                                                                                                                                                                                                                                                                                                                            US-08-912-951-3 STANDARD; DNA; UNC; 2176 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DAYE. . 435
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION UNBER: US 08/846,017
APPLICATION LUMBER: 25-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STATE: California
COUNTRY: United States of America
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                    Sequence 3, Application US/08912951 Sequence 3, Application US/08912951 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                 11111111
2840 ACGCCTAT 2848
                                                                                                                                                                                                             1989 ACGCCCTAT 1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ZIP: 94111
                                                                                                                                                                                                                                                                                                                                                  XXXXXX
                                                           1869
```

2048

300

2108

480

2228

540

2288

```
2529 GGGCAAGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCTCCACGTGCT 2588
                                                                                                                    2649 GCTGCTCCTGCGTTTGGTGGATGATTCTTGTTGGTGGTGACACCTCACCACGCGAA 2708
                                                                                                                                                                                                      2469 CAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCCACCACGCCGTGCGCATCAG 2528
                                                                                                                                                                                           · 899 GAAGACAGTGGTGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGGCTTTTGTTCA 958
                                                                                                       779 GCTGCTCCTGCGTTTGGTGATTTCTTGTTGGTGACACCTCACCTCACCCACGCGAA
                     -----CTACGTCCAGGGGATCCCGCAGGGCTCCATCCTCTCCACGCTGCT
                                                                                                                                                                                                                                    899
                                                                                                                                              q
                                                                                                                                                                                         셤
 ò
                                        ò
                                                           g
                                                                                   ò
                                                                                                   g
                                                                                                                        ò
                                                                                                                                                                     ò
                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                          ò
```

Search completed: Fri Dec 25 17:47:26 1998 Job time : 9031 secs.

THIS PAGE BLANK (USPTO)

```
Sequence 14, Application US/08232463
Sequence 14, Application US/08232463
Patent No. 5670367
GENERAL INFORMATION:
APPLICANT: DORNER, F. APPLICANT: SCHEIFLINGER, F. APPLICANT: FLORENER, F. G. TITLE OF INVENTION: RECOMBINANT FOWLPOX VIRUS NUMBER OF SEQUENCES: 52
CORRESPONDENCE ADDRESS:
ADDRESSEE: Foley & Lardner
STREET: 1800 Diagonal Road, Suite 500
                                                                                                                                                                                                                                                                 US-08-232-463-14 STANDARD; DNA; UNC; 7218 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                CITY: Alexandria
STATE: VA
COUNTY: USA
ZOUNTY: USA
ZIP: Z2313-029
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DC
SOFTWARE: Patentin Release #1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEX: 899149
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                 XXXXXX
                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                     1 CACGCGTCCGGGCAGCGCTG.......GATGCCGGCCCACGGCCTAT 2848 GTGCGCAGGCCCGCTGCCGGGTA.
                      2.08e-25
11.91e-14
176e-06
176e-06
2.32e-01
2.32e-01
7.68e-02
7.68e-02
2.32e-01
2.32e-01
2.32e-01
2.32e-01
2.32e-01
2.32e-01
(MI)
                                                                                                                             Fri Dec 25 15:11:23 1998; MasPar time 245.67 Seconds 540.766 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                           \rm n.\,a. \rm \cdot n.\,a. database search, using Smith-Waterman algorithm with gap extension penalties as well as gap opening penalties
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5, Applicatio
55, Applicatio
144, Applicat
243, Applicat
142, Applicat
                                            Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Applicati
Applicati
Applicati
Applicati
Applicati
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Applicat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Applicat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        , Applicati
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 14, Applicati
Sequence 14, Applicati
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Applicati
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Applicati
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Applicati
                                                                                                                                                                                                                                                                                                                                                                                                              scale 1.649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 5
Sequence 5
Sequence 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                           n-issued
1:5_COMB 2:PCT9_COMB 3:backfiles1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                   >US-08-951-733-13
(1-2848) from US08951733.seq (1 of
2848
                                                                                                                                                                                                                                                                                                                88822 seqs, 23323279 bases x 2
                                                                                                                                                                                                                                                                                                                                                                                                             Mean 9.326; Variance 5.654;
                                                                                                                                                                                                                                                     TABLE default
Gap open 30; Gap extend 1
                                                                                                                                                                                                                                                                                                                                       Minimum Match 0%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-232-
US-08-238-
US-08-238-
US-08-471-
US-07-977-
US-08-471-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PCT-0895-1
PCT-0895-1
PCT-0895-1
PCT-0895-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PCT-US95-1
PCT-US95-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PCT-US95-1
                                                                                                                                                                                                                                                                                         Dbase 0; Query 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query
Match Length DB
                                                                                                                                                        not generated.
                                                                                                                                                                                                                                                                                                                                         Post-processing:
                                                                                                                                                                             Title:
Description:
Perfect Score:
N.A. Sequence:
                                                                                                                                                       Tabular output
                                                                                                                                                                                                                                                     Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Nmatch STD
                                                                                                                                                                                                                                                                                                                                                                                                              Statistics:
                                                                                           MPsrch_nna
                                                                                                                                                                                                                                                                                                                 Searched:
                                                                                                                                                                                                                                                                                                                                                                           Database:
                                                                                                                                Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .
9
```

OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/232,463

FILING DATE:
APPLICATION NUMBER: EP 91 114 300.6
FILING DATE: 26-AUG-1991
ATTORNEY/AGENT INFORMATION:
NAME: BENT, Stephen A.
REGISTATION NUMBER: 29,768
REFERENCE/DOCKET NUMBER: 30472/114 IMMU

TELECOMMUNICATION INFORMATION: TELEPHONE: (703)836-9300 TELEFAX: (703)683-4109

14:

PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/07/935,313

FILING DATE: CLASSIFICATION: 435

2.32e-01		2.32e-01	2.32e-01	1.97e+00	6.84e-01	6.84e-01	1.97e+00	6.84e-01	1.97e+00	1.97e+00	1.97e+00	1.97e+00	1.97e+00	1.97e+00		1.97e+00	1.97e+00	1.97e+00		1.97e+00	1.97e+00	1.97e+00	6.84e-01	1.97e+00	1.97e+00
Sequence 1, Applicatio	7,	'n	3,	95,	145	Sequence 93, Applicati	144	143,	142,	25, A	25,	120,	25	ä	1, 4	ď	No. 51	Sequence 11, Applicati	11,	ģ.	Patent No. 5480796.	Patent No. 5457037.	Sequence 1, Applicatio	Patent No. 5457037.	Patent No. 5457037.
US-08-273-	PCT-US95-0	PCT-US95-0	PCT-US93-0	PCT-US95-1	US-08-471-	PCT-US95-1	US-08-471-	US-08-471-	US-08-471-	PCT-US95-1	S	US-08-133-	US-08-300-	US-08-299-	US-08-273-	5480796-8	5171840-8	US-07-807-	29	5171840-1	5480796-1	5457037-2	US-07-872-	_	5457037-1
-	~	~	~	N	Н	~	-	-	-	N	~	-	н	-	-	m	ო	H	н	ო	٣	ო	-	ო	m
242	1004	1386	1611	29	65	99	99	68	69	84	84	84	84	225	242	1404	1404	1640	1640	2061	2061	2253	2454	2625	3336
ο.																								8.0	
U	0	0	0	0	0	_	0	_	_	0	0	_	0	_	0	0	0	_	_	0	_	_	_	_	_
25	25	22	25	23	24	24	23	24	23	23	23	23	23	23	24	23	23	23	23	23	23	23	24	23	23
20	21	22				56	27	28	53	30	31	32	33	34.	35	36	37	38	39	40	41	42	43	44	45
	υ	O	O	υ	υ	υ	O	U	ບ						O							υ		υ	U

## ALIGNMENTS

~

```
GENERAL INFORMATION:
APPLICANT: BENNETT, Alan
APPLICANT: BENNETT, Alan
APPLICANT: LABAVITCH, John M.
APPLICANT: LABAVITCH, John M.
APPLICANT: BOWELL, Ann
APPLICANT: BOWELL, Ann
APPLICANT: POWELL, Ann
APPLICANT: POWELL, Ann
APPLICANT: STOTZ, Henrik
TITLE OF INVENTION: POLYGALACTURONSES AND THEIR USE TO CONTROL FUNGAL DISEA
NUMBER OF SEQUENCES: 24
CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend Khourie and Crew
STREET: Steuart Street Tower, one Market Plaza
CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                      2079 CCGCGCCCGCTCGTAGTTGAGCACGCTGAACAGTGCCTTCACCCTCGAGGTGAGACGCTC 2020
                                                                                                                                                                                                                                                                                                                                                                                            2019 GGCCCTCTTTTCTCTGCGGAACGTTCTGGCTCCCACGACGTAGTCCATCATCGG 1960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1899 TTCCCGATGCTGCTGTGTTCCGACAGCTCCCGCAGCTGCACCTCTTCAAGTG 1840
                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                             CLONE: pTZgpt-F1s
SEQUENCE 7218 BP; 1944 A; 1491 C; 1486 G; 1929 T; 368 OTHER
                                                                                                                                                                                                                                                                                    Length 7218;
                                                                                                                                                                                                                                                                                                             165; Mismatches 122; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                  Natch 1.7%; Score 49; DB 1; L. Local Similarity 2.0%; Pred. No. 1.91e-14; les 6; Conservative 165; Mismatches 122
                          FILING DATE: 26-AUG-1991
ATTORNEY/AGENT INFORMATION:
NAME: BENT, Stephen A.
REGISTRATION NUMBER: 29,768
REFERENCE/DOCKET NUMBER: 30472/114 IMMU
TELECOMMUINCATION INFORMATION:
TELEPHONE: (703)836-9300
TELEFAX: (703)683-4109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JT 3
US-08-238-163-5 STANDARD; DNA; UNC; 215 BP.
               EP 91 114 300.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 5, Application US/08238163 Sequence 5, Application US/08238163 Patent No. 5569830
                                                                                                                                                   14:
                                                                                                                               TELEX: 899149
INFORMATION FOR SEQ ID NO: 1
SEQUENCE CHARACTERISTICS:
LENGTH: 7218 base pairs
                                                                                                                                                                                                       single
  FILING DATE: APPLICATION NUMBER:
                                                                                                                                                                                     nucleic acid
                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      94105-1493
                                                                                                                                                                                                                 TOPOLOGY: line IMMEDIATE SOURCE:
                                                                                                                                                                                                   STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY:
                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   XXXXXX
                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                          음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     981 GGGCCCCCCATCCAACGTCGCGGCCACCACCTCCCTGGGACACGCCTTGTCCCCCGGTGTA 1040
                                                                                                                                                                                                                                                                                                  1041 CGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGAACAAGGAGCAGCAGCCGCCCTCCTT 1100
                                                                                                                                                                                                                                                                                                                                                        1101 CCTACTCAGCTCTCTGAGGCCCAGCCTGGCGCTCGGAGGCTCGTGGAGACCATCTT 1160
                                                                                                                                                                                                                                                                                                                                                                                                           1161 TCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCGCCTGCCCCAGCG 1220
                                                                                                                                                                          1221 CTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCAGTGCCCCTA 1280
                                                                                                                                                                                           Gaps
                                                                                                                                                 ö
                                                                            CLONE: PIZGPL-FIS
SEQUENCE 7218 BP; 1944 A; 1491 C; 1486 G; 1929 T; 368 OTHER
                                                                                                                     Query Match 2.4%; Score 67; DB 1; Length 7218; Best Local Similarity 2.4%; Pred. No. 2.08e-25; Matches 9; Conservative 211; Mismatches 153; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/232,463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
APPLICANT: DORNER, F.
APPLICANT: SCHEIFLINGER, F.
APPLICANT: FALKNER, F. G.
TITLE OF INVENTION: RECOMBINANT FOWLPOX VIRUS
NUMBER OF SEQUENCES: 52
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .T. 2
US-08-232-463-14 STANDARD; DNA; UNC; 7218 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE: Foley & Lardner
STREET: 1800 Diagonal Road, Suite 500
CITY: Alexandria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/07/935,313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY: USA
ZIP: 22313-0299
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPOTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 14, Application US/08232463
Sequence 14, Application US/08232463
Patent No. 5670367
SEQUENCE CHARACTERISTICS:
LENGTH: 7218 base pairs
                           TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1415 YYYYYYYYYY 1427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1281 CGGGGTGCTCCTC 1293
                                                       linear
                                                                  IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                       TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STATE:
                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                     ô
                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                    음
                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                   δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
  888888888
                                                                                                                                                                                                                                                        à
```

ö

US-08-951-733-13-01.rni

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 66 YNYGGNNVGAAKTHYYTHTNVSGADSKTVTDSYNASGTSSSNGGTDGNRSGADSYGSSKT 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    126 AMTSRNRTGKTANNAVDSRNMGDASVGSDKNTKKHAKNSADGKVGSKNNGDRNNRYGTGT 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6 MSSSSVVSRTASCNDKAKKDGNTISSWTIDCCNRTWGVCDIDTIYRVNNDSGHNKYSSAN 65
                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                      NAME/KEY: misc_feature
LCCATION: 1..215
COTHER INFORMATION: /Standard_name= "Deduced amino acid
OTHER INFORMATION: Sequence of PGIP from bean."
SEQUENCE 215 BP; 15 A; 8 C; 25 G; 26 T; 141 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 144, Application US/08471052A
Sequence 144, Application US/08471052A
Patent No. S625033
GENERAL INFORMATION:
APPLICANT: Kay, B. K.
APPLICANT: FOWLKes, D. M.
TITLE OF INVENTION: Totally Synthetic Affinity Reagents
NUMBER OF SEQUENCES: 166
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 1.2%; Score 35; DB 1; Length 215; Best Local Similarity 13.2%; Pred. No. 1.76e-06; Matches 26; Conservative 76; Mismatches 95; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET: 1155 Avenue of the Americas
CITY: New York
STATE: New York
COUNTRY: U.S.A.
2 IP: 10036-2711
COMPUTER READBLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPALIDLE
OFFRATIGS SYSTEM: PC-DOS/MS-DOS
SOFFWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/471,052A
FILING DATE: 05-JUNE-1995
CLASSIFICATION: 530
ATTONREY/AGENT INFORMATION:
NAME: MISTOCK, S. Leslie
REGISTRATION NUMBER: 18,872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JT 5
US-08-471-052A-144 STANDARD; DNA; UNC; 66 BP.
                     NAME: Bastian, Kevin L.
REGISTRATION NUMBER: 34,774
REFRENCE/DOCKET NUMBER: 2307E-540
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 543-9600
TELEPHONE: (415) 543-5043
INFORMATION FOR SEO ID NO: 5:
SEQUENCE CHARACTERISTICS:
LENTH: 215 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
     ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    :: : | | | :::::
1435 TGCTGTGCTGGCGGAGC 1419
                                                                                                                                                                                                                               TOPOLOGY: unknown
MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               186 KSNVSNNCGGGNKRDVS 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
     S,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: BENNETT, Alan
APPLICANT: BENNETT, Alan
APPLICANT: LABANTICH, John M.
APPLICANT: LABANTICH, John M.
APPLICANT: STOTZ, Henrik
TITLE OF INVENTION: POLYGALACTURONASES AND THEIR USE TO CONTROL FUNGAL DISEASE
NUMBER OF SEQUENCES: 24
CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend Khourie and Crew
STREET: Steuert Street Tower, One Market Plaza
CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        :: ::| :: ::|:::: 100 GGGGACCCGGCGGGTTTTCCGCGCGTGGCGTGGCGTGGGGAC 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           130 CTGCCGCTGGCCACGTTCGTGCGCGCCCTGGGGCCCCAGGGCTGGCGGCTGGTGCAGCGC 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                143 SRNMGDASVGSDKNTKKHAKNSADGKVGSKNNGDRNNRYGTGTKSNVSNNCGGGNKRDVS 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        83 HTNVSGADSKTVTDSYNASGTSSSNGGTDGNRSGADSYGSSKTAMTSRNRTGKTANNAVD 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                               LOCATION: 1..215
OTHER INFORMATION: /standard_name= "Deduced amino acid
OTHER INFORMATION: sequence of PGIP from bean."
SEQUENCE 215 BP; 15 A; 8 C; 25 G; 26 T; 141 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 1.2%; Score 34; DB 1; Length 215; Best Local Similarity 12.9%; Pred. No. 6.10e-06; Matches 17; Conservative 56; Mismatches 59; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STAIE.

COUNTRY: US
2IP: 94105-1493

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/238,163
FILING DATE: 03-MAX-1994

FILING DATE: 03-MAX-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     T 4
US-08-238-163-5 STANDARD; DNA; UNC; 215 BP.
                                                                                                                                   2307E-540
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/238,163
FILING DATE: 03-MAY-1994
CLASSIFTGATION: 800
                                               CLASSIFICATION: 800
ATTORNEY/AGENT INFORMATION:
NAME: BASTIEN, Kevin L.
REGISTRATION NUMBER: 334,774
REFERENCE/DOCKET NUMBER: 23071
TELEPHONE: (415) 543-560
TELEFAX: (415) 543-560
TELEFAX: (415) 543-5643
INFORMATION FOR SEO ID NO: 5: SEQUENCE CHARACTERSTICS:
LENGTH: 215 base pairs
TYPE: nucleic acid
STRANDENESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 5, Application US/08238163
Sequence 5, Application US/08238163
Patent No. 5569830
                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: misc_feature
LOCATION: 1..215
                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                          unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           203 SYANNKCCGSSC 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ::| :||::|
250 GCACGGCCGCC 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             XXXXXX
```

g

ö 셤 ò

ó

Gaps

ö

Length 68;

```
0; Mismatches 12; Indels
                                                                     Score 25; DB 1; L. Pred. No. 2.32e-01;
                              TOPOLOGY: LINEAR
ANTI-SENSE: NO
SEQUENCE 68 BP; 7 A; 38 C; 17 G; 6 T; 0 OTHER.
                                                                     Query Match 0.9%;
Best Local Similarity 75.5%;
Matches 37; Conservative
         TYPE: NUCLEIC ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: unknown
    LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1492 GG 1493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  67 GG 68
                                                                                                                                                           8888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                           APPLICANT: Prockob, Darwin J.
APPLICANT: Ala-Kokko, Leena
APPLICANT: Ala-Kokko, Leena
APPLICANT: Milliams, Charlene J.
APPLICANT: Baldwin, Clinton
APPLICANT: Baldwin, Clinton
APPLICANT: Ahmad, Milofer Nina
TITLE OF INVENTION: METHODS OF DETECTING A GENETIC
TITLE OF INVENTION: MEDISPOSITION FOR OSTEOARTHRITIS
NUMBER OF SOUTHERS: 261
CORRESPONDENCE ADDRESS:
ADDRESSEE: Woodcock, Washburn, Kurtz, Mackiewicz & No. 5558988118
STREET: One Liberty Place, 46th floor
                                                                                                                                                                                         Gaps
                                                                                                                                      Score 25; DB 1; Length 66;
Pred. No. 2.32e-01;
18; Mismatches 37; Indels
REFERENCE/DOCKET NUMBER: 1101-179
TELECOMMUNICATION INFORMATION:
TELEPHONE: 212 790-9090
TELERA: 212 869-8864/9741
TELERA: 66141 PENNIE
INFORMATION FOR SEO ID NO: 144:
SEQUENCE CHARACTERISTICS:
LENGTH: 66 Dases
TYPE: nucleic acid
STRANDENNESS: single
STRANDENNESS: single
TOPOLOGY: unknown
MOLECULE TYPE: DNA
SEQUENCE 66 BP; 2 A; 3 C; 4 G; 2 T; 55 OTHER.
                                                                                                                                                                                                                                                                   ZIP: 19103
ZOMPUTER READABLE FORM:
MEDION TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC-DOS/MS-DOS
SOFTWARE: WordPerfect 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/977,284A
FILING DATE: 13-NOV-1992
CLASSIFICATION 435
PROR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TJU-0697
                                                                                                                                                                                                                                                                                                        Sequence 243, Application US/07977284A
Sequence 243, Application US/07977284A
Patent No. 5558988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Debloca, Mark
REGISTRATION NUMBER: 33,229
REFERENCE/DOCKET NUMBER: TJU-(
TELECOMMUNICATION INFORMATION:
TELEFAX: (215) 568-3100
TELEFAX: (215) 568-349
INFORMATION FOR SEQ ID NO: 243:
. SEQUENCE CHARACTERISTICS:
                                                                                                                                       Query Match 0.9%;
Best Local Similarity 11.3%;
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ΡA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY:
                                                                                                                                                                                                                                       1492 GG 1493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STATE:
                                                                                                                                                                                                                   64 GG 65
                                                                                                                                                                                                                                                                                       XXXXXX
                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                  qq
   888888888888888
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1432 AGCAGCCCCTGGCAGGTTACGGCTTCGTGCCTGCCTGCCCGGCTGGTGCCCCCA 1491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Gaps
Sequence 142, Application US/08471052A
Sequence 142, Application US/08471052A
C Patent No. 5625033
C GENERAL INFORMATION:
APPLICANT: Kay, B. K.
APPLICANT: Fowlkes, D. M.
TITLE OF INVENTION: Totally Synthetic Affinity Reagents
NUMBER OF SEQUENCES: 166
CORRESPONDENCE ADDRESS:
ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 0.9%; Score 25; DB 1; Length 69; Best Local Similarity 11.3%; Pred. No. 2.32e-01; Matches 7; Conservative 18; Mismatches 37; Indels
                                                                                                                                                                                                                                                                                                                                                                                         CITIT: New YORK
COUNTRY: U.S.A.
2IP: 10036-2711
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFWARE: PAtentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/471,052A
FILING DATE: O6-JUNE-1995
CLASSIFICATION: 530
ATTORNEY/AGENT INFORMATION:
NAME: MISTOCK S. Leslie
REGISCHARTION NUMBER: 1101-179
TELEPROMYNICATION NUMBER: 1101-179
TELEPRATION NUMBER: 1101-179
TELEPRATION STORMATION:
TELEPRATION SEQ ID NO: 142:
SEGUENCE CARRACTERISTICS:
LENTH: 69 bases
LENTH: 69 bases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MOLECULE TYPE: DNA
SEQUENCE 69 BP; 2 A; 4 C; 6 G; 2 T; 55 OTHER.
```

```
ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                   Sequence 94, Application PC/TUS9511934
Sequence 94, Application PC/TUS9511934
GENERAL INFORMATION:
APPLICANT: Cytogen Corporation
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From
TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES: 103
CORRESPONDENCE ADDRESS:
ADDRESSE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 100, Application PC/TUS9511934
Sequence 100, Application PC/TUS9511934
GENERAL INFORMATION:
APPLICART: Cytogen Corporation
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From
TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES: 10
CORRESPONDENCE ADDRESS:
ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 26; DB 2; Length 74;
Pred. No. 7.68e-02;
19; Mismatches 43; Indels
                                                                                                                                                                                                                                                                                                                    SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
PLICATION NUMBER: PCT/US95/11934
FILING DATE: 20-SEP-1995
                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY: linear MOLECULE TYPE: DNA (genomic) SEQUENCE 74 BP; 3 A; 4 C; 3 G; 1 T; 63 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  T 9
PCT-US95-11934-100 STANDARD; DNA; UNC; 74 BP.
T 8
PCT-US95-11934-94 STANDARD; DNA; UNC; 74 BP.
                                                                                                                                                                                                                                                                        MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 0.9%;
Best Local Similarity 11.4%;
Matches 8; Conservative
                                                                                                                                                                                                                                            ZIP: 10036
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          : : |||||
2508 CCACCACGCC 2517
                                                                                                                                                                                                                                 USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          63 BNNBNACGCC 72
                                                                                                                                                                                                                                 COUNTRY:
                              XXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                XXXXXX
 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
```

```
945 CCACTCCCACCCATCCGTGGGCCGCCAGCACCACGGGGCCCCCCATCCACATCGCGGCC 1004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 100, Application PC/TUS9511934
Sequence 100, Application PC/TUS9511934
GENERAL INFORMATION:
APPLICANT: CYPORACYTON:
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES: 103
CORRESPONDENCE ADDRESS:
ADDRESSEE: Pennie & Edmonds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 25; DB 2; Length 74;
Pred. No. 2.32e-01;
20; Mismatches 40; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ZIP: 10036
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION NATA:
APPLICATION NUMBER: PCT/US95/11934
FILING DATE: 20-SEP-1995
                                                             COMPUTER TEACHBLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: TBM PC compatible
COMPUTER: TBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/11934
FILING DATE: 20-SEP-1995
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY: linear MOLECULE TYPE: DNA (genomic) SEQUENCE 74 BP; 6 A; 6 C; 1 G; 1 T; 60 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JT 10
PCT-US95-11934-100 STANDARD; DNA; UNC; 74 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Misrock, S. Leslie
REGISTRATION NUMBER: 18,872
REFERENCE/DOCKET NUMBER: 1101-196-228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
CITY: New York
COUNTRY: USA
                                                                                                                                                                                                                                                                                   ATTORNET/AGENT INFORMATION:
NAME: Misrock, S. Leslie
REGISTRATION NUMBER: 118,672
REFERENCE/DOCKET NUMBER: 1101-1
TELECOMMUNICATION INFORMATION:
TELEFAX: (212) 790-9090
TELEFAX: (512) 869-9741/8864
TELEFAX: (512) 869-9741/8864
TELEFAX: FOR SEQUENCE INFORMATION FOR SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
LENGTH: 74 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 0.9%;
Best Local Similarity 7.7%;
Matches 5; Conservative
New York
                                           10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1005 ACCAC 1009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               66 ACCAC 70
```

ö

```
167 AGGGCTGGCGGCTGGTGCAGCGCGGGGACCCGGCGGCTTTCCGCGCGCTGGTGGCCCAGT 226
                                               540 GAGCGCGCAGCAGCAGCAGGTGAACCAGCACGTCGTCGCCCACGCGGCGCAGCAGCAG 481
                Sequence 99, Application PC/TUS9511934
Sequence 99, Application PC/TUS9511934
GENERAL INFORMATION:
APPLICANT: Cytogen Corporation
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From
TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES: 103
CORRESPONDENCE ADDRESS:
ADDRESSEE: Pennie & Edmonds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 25; DB 2; Length 75;
Pred. No. 2.32e-01;
20; Mismatches 43; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
FILLING DATE: 20-SEP-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOLECULE TYPE: DNA (genomic)
SEQUENCE 75 BP; 1 A; 1 C; 7 G; 5 T; 61 OTHER.
                                                                                                                                                               T 12
PCT-US95-11934-99 STANDARD; DNA; UNC; 75 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LT 13
PCT-US95-11934-99 STANDARD; DNA; UNC; 75 BP.
                                                                                                                                                                                                                                                                                                                                                   E: Pennie & Edmonds
1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 99, Application PC/TUS9511934
Sequence 99, Application PC/TUS9511934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEPHONE: (212) 790-9090
TELEFAX: (212) 869-9741/8864
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 99:
SEQUENCE CHARACTERISTICS:
LENGTH: 75 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: Misrock, S. Leslie
REGISTRATION NUMBER: 18,872
REFERENCE/DOCKET NUMBER: 11
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 20-SEP-1995
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                            ZIP: 10036
COMPUTER REDABLE FORM:
MEDIOM IYPE: Florm:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 0.9%;
Best Local Similarity 10.0%;
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                                                    New York
New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      227 GCCTGGTGTG 236
                                                                                                             480 CCCCCACGCC 471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         64 NNBGGTTGTG 73
                                                                              63 BNNBNACGCC 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                  STREET:
                                                                                                                                                                                              XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     XXXXXX
                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                               ე
                                                                              g
                                                                                                                                                                                                                                                                                                    541 AGAGCGCGCAGCGTGCCAGCAGCTGAACCAGCACGTCGTCGCCCACGCGGCGCAGCAGCA
                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 94, Application PC/TUS9511934
Sequence 94, Application PC/TUS9511934
GENERAL INFORMATION:
APPLICART: Cytogen Corporation
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From
TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES: 103
CORRESPONDENCE ADDRESS:
ADDRESSEE: Pennie & Edmonds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                       41; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 26; DB 2; Length 74;
Pred. No. 7.68e-02;
19; Mismatches 43; Indels
                                                                                                                                                                                                        Length 74;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:

COMPUTER: Floppy disk

COMPUTER: BM PC COMPATIBLE

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: PATENTIN Release #1.0, Version #1.30

CURRENT APPLICATION NATA:

APPLICATION NUMBER: PCT/US95/11934

FILING DATE: 20-SEP-1995
                                                                                                                                                                                                    Score 26; DB 2; L
Pred. No. 7.68e-02;
20; Mismatches 41
                                                                                                                                                        MOLECULE TYPE: DNA (genomic)
SEQUENCE 74 BP; 6 A; 6 C; 1 G; 1 T; 60 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MOLECULE TYPE: DNA (genomic)
SEQUENCE 74 BP; 3 A; 4 C; 3 G; 1 T; 63 OTHER
                                                                                                                                                                                                                                                                                                                                                                                                              .T 11
PCT-US95-11934-94 STANDARD; DNA; UNC; 74 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1101-196-228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STREET: 1155 Avenue of the Americas CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEPHONE: (212) 790-9090
TELEFAX: (212) 869-9741/8864
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 94:
SEQUENCE CHARACTERISTICS:
             TELEPHONE: (212) 790-9090
TELEFAX: (212) 869-9741/8864
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 100:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
NAME: Misrock, S. Leslie
REGISTRATION NUMBER: 18,872
REFERENCE/DOCKET NUMBER: 11
TELECOMMUNICATION INFORMATION:
FELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 74 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                           LENGTH: 74 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                      / Match 0.9%;
Local Similarity 10.3%;
les 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 0.9%;
Best Local Similarity 11.4%;
Matches 8; Conservative
                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION:
                                                                                                                       STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    USA
                                                                                                                                                                                                                                                                                                                                                               481 GCCCCCAC 474
                                                                                                                                                                                                                                                                                                                              63 VNNACCAC 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10036
                                                                                                                                             TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                               XXXXXX
                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
 88888888888888888
                                                                                                                                                                                                                                                                                                                                   g
```

ö

0; Gaps

```
Sequence 98, Application PC/TUS9511934

C Sequence 98, Application PC/TUS9511934

C BENERAL INFORMATION:

APPLICANT: Cytogen Corporation

TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From

TITLE OF INVENTION: Peptide Libraries

NUMBER OF SEQUENCES: 103

CORRESPONDENCE ADDRESS:

ADDRESSEE: Pennie & Edmonds

STREET: 1155 Avenue of the Americas

CITY: New York

C CITY: New York

C COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 0.9%; Score 26; DB 2; Length 81;
Best Local Similarity 11.4%; Pred. No. 7.68e-02;
Matches 8; Conservative 19; Mismatches 43; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/11934
FILING DATE: 20-SEP-1995
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: MISTOCK, S. Leslie
REGISTRATION UNMBER: 18,721,705
       SOFTWARE: PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                   MOLECULE TYPE: DNA (genomic)
SEQUENCE 81 BP; 3 A; 5 C; 6 G; 4 T; 63 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JT 15
PCT-US95-11934-98 STANDARD; DNA; UNC; 81 BP.
XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1101-196-228
                                                                                                                                                           1101-196-228
                                         APPLICATION NUMBER: PCT/US95/11934
FILING DATE: 20-SEP-1995
                                                                                            ATTORNEY AGENT INFORMATION:
NAME: MAISTOCK, S. Leslie
REGISTRATION NUMBER: 18,872
REFERENCE/DOCKET NUMBER: 1101-
TELECOMMUNICATION INFORMATION:
TELEFAX: (212) 790-9090
TELEFAX: (212) 869-9741/8864
INFORMATION FOR SEQ ID NO: 92:
SEQUENCE CHARACTERISTICS:
LENGTH: 81 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              : (212) 790-9090
(212) 869-9741/8864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE/DOCKET NUMBER: 11(
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: (212) 869-974
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                         CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 81 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       : : |||||
2508 CCACCACGCC 2517
                                                             FILING DATE: 2
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  70 BNNBNACGCC 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
       0; Gaps
GENERAL INFORMATION:
APPLICANT: Cytogen Corporation
TITLE OF INVENTION: Partigen Binding Peptides (Abtides) From
TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES: 103
CORRESPONDENCE ADDRESS:
ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 92, Application PC/TUS9511934
Sequence 92, Application PC/TUS9511934
GENERAL INFORMATION:
APPLICANT: Cytogen Corporation
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From
TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES: 103
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 0.9%; Score 25; DB 2; Length 75; Best Local Similarity 10.0%; Pred. No. 2.32e-01; Matches 7; Conservative 20; Mismatches 43; Indels
                                                                                                                                                                                                                     CAPPTER 10035

CAPPTER 10036

CAPPTER 1009Y disk
COMPUTER: IBM PC COMPAIDE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN PATA:
APPLICATION NUMBER: PCT/US95/11934
FILING DATE: 20-SEP-1995
CLASSIFICATION NUMBER: PCT/US95/11934
FILING DATE: 20-SEP-1995
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Misrock, S. Leslie
REGISTRATION NUMBER: 18,872
REFERENCE/POCKET NUMBER: 1101-196-228
TELEFAX: (212) 790-9090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE: DNA (genomic)
SEQUENCE 75 BP; 1 A; 1 C; 7 G; 5 T; 61 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  T 14
PCT-US95-11934-92 STANDARD; DNA; UNC; 81 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
CITY: New York
STATE: New York
COUNTRY: USA
ZIP: 10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                       STATE: New York
COUNTRY: USA
ZIP: 10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         260 GGCGGCCGTG 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       64 NNBGGTTGTG 73
```

XXXXXX

RESULT

Cp

ď

ö

0; Gaps

```
Query Match

0.9%; Score 25; DB 2; Length 81;
Best Local Similarity 7.7%; Pred. No. 2.32e-01;
Matches 5; Conservative 20; Mismatches 40; Indels
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
SEQUENCE 81 BP; 6 A; 6 C; 4 G; 5 T; 60 OTHER.
  ន្តន្តន្តន្ត
```

0; Gaps 0;

73 ACCAC 77 ||||| 1005 ACCAC 1009 q

ò

đ

Search completed: Fri Dec 25 15:16:36 1998 Job time : 313 secs.

13 30 14 30 15 30 16 30 17 30 17 30 18 30 19 28 20 29 20 20 29 20 20 29 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20	•	) W W W 4 4 4 4 4 4 ) F & O O O O O O O O O O O O O O O O O O	RESULT 1 LOCUS AF015950 DEFINITION HOMO SAP	ACCESSION AF015950 NID 92330016 KEYWORDS Numan. SOURCE Human. ORGANISM Homo sap	REFERENCE 1 (base AUTHORS Nakamura		COUKNAL SUBMITCE FEATURES SOURCE	gene
	of (c) 1993-1998 University of Edinburgh, U. Distribution rights by Oxford Molecular Ltd n.a. database search, using Smith-Watermar sap extension penalties as well as gap openir thu Dec 24 09:43:38 1998; MasPar time 5827.	Oct	: cessing:	Database: emb155  1:em_ba 2:em_fun 3:em_htg 4:em_hum1 5:em_hum2 6:em_in 7:em_om 8:em_or 9:em_ov 10:em_pat 11:em_ph 12:em_pl 13:em_con 8:em_or 9:em_ov 10:em_pat 11:em_ph 12:em_pl 13:em_con 14:em_vi 15:ep_ba 16:ep_ba 17:ep_htg 18:ep_in 19:ep_om 20:ep_ov 15:ep_pat 22:ep_ph 23:ep_pl 24:ep_pl 25:ep_pl 26:ep_pr2 27:ep_pr3 28:ep_con 29:ep_st 30:ep_st 31:ep_sy 32:ep_un 33:ep_vi	Statistics: Mean 11.310; Variance 6.127; scale 1.846	Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.  SUMMARIES	Score Match Length DB ID Description  1909 99.4 4015 27 AF015950 Homo sapiens telomeras 1896 98.8 8660 31 AF043739 Synthetic construct hu 1895 98.7 4027 27 AF018167 Homo sapiens telomeras 453 236 3426 28 AF018167 Homo sapiens telomeras	M N N N N N N N N N N N N N N N N N N N

S.griseus gene for pre 4.16e-02 Synthetic DNA for prep 4.16e-02 Synthetic DNA for prep 4.16e-02 Syriseus gene for pre 4.16e-02 GDNA encoding envelope 4.16e-02 Homo sapiens Chromosom 1.24e-01 Epstein-Barr virus (wi 1.37e-01 S.pombe chromosome I c 4.40e-01 Epstein-Barr virus (wi 1.37e-01 GDNA encoding envelope 1.38e+00 Epstein-Barr virus Bam 1.38e+00 Gallus domesticus DI-1 4.23e+00 S.marcescens proBA gen 4.23e+00 S.coelicolor 6 actWa r 1.38e+00 Mycobacterium tubercul 1.38e+00 Mycobacterium tubercul 1.38e+00 Mycobacterium tubercul 1.38e+00 Drosophila melanogaste 1.38e+00 Human DNA sequence fro 4.23e+00 Human DNA sequence *** 4.23e+00 Epstein-Barr virus (EB 1.38e+00 Epstein-Barr virus (EB 1.38e+00 Epstein-Barr virus (EB 1.38e+00 Epstein-Barr virus (EB 1.26e+01 S.griseus gene for pre 1.26e+01	PRI  transcriptase ()  yotes; Metazoa; ( Primates; Catari man.K.B., Weinric y,C.B. and Cech,7 mologs from fiss; 97)  corporation, 230 (
A10158 A10161 A10162 A10162 B04076 WUGS0534 HS4RSIR22T SPRCZE11 HS179D3A E04076 HC4BHLF CCHCDILRB SWRAROBA SWRAROBA AF0314863 AF0314863 AF0314863 AF0314863 AF0314863 AF0314863 AF0314863 AF011922 MYZOH10 MYZOH10 AF011922 HS1568 HS1568 HS1568 HS1568 HS1568 HS1568 HS1568 HS1568 HS1568 HS1568 HS1568 HS1568 HS1619 AF019317 HS1568 HS1585 HS1619 AF019317 HS1754E20 HS1754E20 HS1754E20 HS1768 AF019317 HS1168 AF019317 HS1168 AF019317 HS1168 AF019317 HS1168 AF019317 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS1168 HS11	ALIGNMENTS  4015 bp mRNA  liens telomerase reverse transc  tae; mitochondrial eukaryotes;  tae; matochondrial eukaryotes;  tat; Mammalla; Eutheria; Primat  at; Mammalla; Eutheria; Primat  at; Mammalla; Eutheria; Primat  at; Mat, Lingner, J., Harley, C.B.  se catalytic subunit homologs  se catalytic subunit homologs  277 (5328), 955-959 (1997)  ss 1 to 4015)  ss 1 to 4015)  lu. 4015  //db_xref="taxon:9606"  //db
201 21 201 21 201 21 201 21 201 21 201 21 201 21 201 21 201 21 201 21 39073 23 76094 25 2926 15 2926 1	AF015950 4015 bp n domo sapiens telomerase a cds. AF015950 92330016 human. Homo sapiens Eukaryotae; mitochondrial Vertebrata; Mammalla; Eut Homo. I (bases 1 to 4015) Nakamura, T.M., Morin, G.B. Andrews, W.H., Lingner, J., Felomerase catalytic sub Science 277 (5328), 955-9 9740063 2 (bases 1 to 4015) Morin, G.B. Direct Submission Submitted (24-JUJ-1997) April 1 4015 April 1 4015 April 2 4015 April 2 4015 April 3 4015 April 3 4015 April 4 4015 A
22 22 22 22 22 22 22 23 33 33 33 33 33 3	AF015950 40 Homo sapiens te cds. AF015950 92330016 human. human. human. Homo sapiens Bukaryotes; mit Vertebrata; Man Homo. 1 (bases 1 to Nakamura, T.M., I Andrews, W.H., I Telomerase cata Science 277 (53 97400623 97400623 1 (bases 1 to Morin, G.B. Direct Submissi Submitted (24-3 Menlo Park, CA Menlo Park,
00 00 00 00 00 00 00 00 00 00 00 00 00	RESULT 1 LOCUS DEFINITION ACCESSION MID KEYWORDS SOURCE ORGANISM TITLE JOURNAL MEDLINE REFERENCE AUTHORS TITLE JOURNAL FEATURES FEATURES COURCE SOURCE COS

```
LUDGARGE PER LI SYGATEMY ULILLAR VOULDER VOUGE PER LUDGARGE PER LUDGAR
/product="telomerase reverse transcriptase"
/db_xref="PID:92330017"
/db_xref="PID:92330017"
/db_xref="MPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLVQRGDPAFRALGION="WPRAPRCRAVRSLLRSHYREVLPLERGARNVLAFGFAAFRARAQCLVCYWPMDARPPPAABSFRQVSCLKELVARVLQRLCERGARNVLAFGFALLDGARGGPPEAFTTSVRSYLPNTVTDALRGSGAWGLLLRRNGDDVLVHLLARCALFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FFLRVISDTASLCYSILKAKNAGMSLGAKGAAGPLPSEAVQWLCHQAFLLKLTRHRVT
YVPLLGSLRTAQTQLSRKLPGTTLTALEAAANPALPSDFKTILD"
```

O Ø 663 BASE COUNT ORIGIN

ö 540 GCCGCTGGCCACGTTCGTGCGGCGCCTGGGGCCCCAGGCCTGGCGGCTGGTGCAGCGCGG 180 251 ACGGCCGCCCCCCCCCCCCCCTTCCGCCAGGTGTCTGCTGACGAGGAGCTGGTGGC 300 311 GGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCTCGGCGCTGCCAC 600 TCAGGCCCGGCCCCCCCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGGC 660 GCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCTGCTGCGCAGCCACTACCGCGAGGTGCT 120 GCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCCCGCGATGCC 60 GCAGCGCTGCGTCCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCCGGGATGCC 71 0; Indels 0; Gaps CCGCGTGGGCGACGACGTGCTTCACCTGCTGGCACGCTGCGCGCTCTTTGTGCTGGT Length 4015; Score 1909; DB 27; Pred. No. 0.00e+00; 0; Mismatches 0; Query Match 99.4%; Best Local Similarity 100.0%; Matches 1909; Conservative 432 12 241 252 372 492 612 Н 61 72 121 132 181 192 301 312 361 421 181 541 552 601 g ò g à 셤 셤 ŏ. g ò g ò g ò 임 ò g ö 유 ò ద ò ö

QQ .	9 1	CIGGAACCATAGCGICAGGGAGGCCGGGGICCCCCTGGGCCTGCCAGCCCCGGGIGCGAG 720
Š Š	٠ ،	seaaccaractercaseseseses (CCCCCreseses / 3
8	721	GAGGCGCGGGGCCAGTGCCAGCCGAAGTCTGCCCGTTGCCCAAGAGGCCCAGGCGTGGCGC 780
qo .		4 1
Š t	א עכ	GCCCCTGAGCCGGAGCGGACGCCCGTTGGGCAGGGGTCCTGGGCCCCACCGGGCAAGGAC 85
oy Oy	852	GCGTGGACCGAGTACCGTGGTTCTGTGGGGTGCACACCAGACCCCCCAAAAAGC 900 GCGTGGACCGGAGAAGCGGGTTTCTGTGTGGTGTCACCTGCCAGACCGGCGAAGAAGC 911
qq	901	ACCICITIGGAGGTGCGCTCTTGGCACGCGCCACTCCCACCCATCCGTGGGCCGCCA 96
δλ	912	CTCTGGCACGCGCCACTCCCATCCGTGGGCCGCCA
QQ	196	GCACCACGCGGCCCCCCATCCACATCGCGGCCACGTCCCTGGGACACGCCTTGTC 1020
Qy	972	CACCACGCGGGCCCCCCATCCATCGCGGCCCACCACGTCCCTGGGACACGCCTTGTC
QQ		08
ΟŊ	1032	CCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGC
oy Oy	1081	GCCCTCCTTCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGAGGCTCGTGGA 1140
g	1141	ACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCGC
QΫ	1152	GACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCGCCCT 1211
qq	1201	GCCCCAGCGCTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAAGCACGCGCA 1260
οy	1212	CCCCAGCGCTACTGGCAAATGCGGCCCCTGTTCTGGAGCTGCTTGGGAACCACGCGCA 1
QQ	1261	GIGCCCTACGGGGTGCICCTCAAGACGCACTGCCCGCIGCGAGCTGCGGTCACCCCAGC 1320
QY	1272	GCCCTACGGGGTGCTCCTCAAGACGCACTGCCCGCTGCGAGCTGCGGTCACCCCAG
qq	1321	
ΟŊ	1332	GCCGGTGTCTGTGCCCGGGAGAAGCCCCAGGGCTCTGTGGCGGCCCCCCGAGGAGGAGGA
QQ	1381	CIGGIGCAGCIGCIC
οy	1392	ACAGACCCCGTCGCCTGGTGCAGCTGCCGCCAGCACAGCAGCACCCCTGGCAGGTG
g G	1441	SGCCTGCCTGCGCCGGCTGCCCCCAGGCCTCTGGGGCTCCAGGCA 15
QY	1452	GGCTTCGTGCGGGCCTGCCTGCCGGCTGGTGCCCCCAGGCCTCTGGGGCTCCAGGCA 1
qq	1501	AACGAACGCCGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCT
δy	1512	SAACGCCGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAA
eg G	1561	AGGAGCTGACGTGGAAGATGAGCGTGCGGGAC
δy	1572	CTCTCGCTGCAGGAGCTGAAGATGAGCGTGCGGGACTGCGCTTGGCTGCGCA
ag		AGCCCAGGGGTTGGCTGTGTTCCGGCCGCAGACGCCCGTCTGCGTGAGGAGATCCTGGC 168
ΟŸ	1632	scccadddgiigdcigigiicadcacadadcaccgicigcagagaagaiccig
Op	1681	TGATGAGTGTGTACGTCGTCGAGCTGCTCAGGTCTTTCTT
δy	1692	STICCIGCACIGGCIGAIGAGIGIGIACGICGICGAGCIGCICAGGICTITITI
QC	1741	IGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAGTGTCTGGAG 1800

ò 셤 ò 셤 ö

```
Match 1808; Marity 199.9%; Marcal Similarity 199.9%; March 1898; Conservative
                                                                                                          VPDYAG"
                                                                                                                                                                                                                                                  ď
                                                                                                                                                                                                                                               1886
                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                           source
                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  501
                                                                                                                                                                                                                                                                                                                                                                                                                                              1161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1821
                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                          合
                                                                                                                                                                                                                                                                                                                                                                                                                                              요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    පි
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="telomerase catalytic subunit"
/db_xref="PID:93023055"
/db_xref="PID:93023055"
/translation="MPRAPRCRANYESLIRSHYREVLPLATFYRRIGPOGWRLVQRGDP
AAFRALVAQCIOVYPWDARPPERGYOSCIKELVARVLQRLCERGAKNVLAFGFA
LLDGARGOPPEAFTYSYRSYLDHYVDALRGSGAWGLLLRRVGDDVYHLLARCALFY
LVAPSCAYQVGGPPLYQLGAATQARPPPHASGPRRRIGGERAWHSVREAGVPLGLPA
RQARRGGSASNSLPLPKRRRGAAPEPERTPYGGSWAHPFRRRGAGSASNGFCVVSPA
RPAERATSLEGALSGTRRSH9SYGRGHHAGPPSTSRPRWTPGTRRGPSTRFKFLVS
SGDKEQLRPSFLLSSLRRSLTGARRLVETIFLGSRPWWPGTPRRLPQRYWOMRPL
FLELLGNHAQCPYGVLLKTHCPLRAAYTPAGSVCARERPOGSSVAAPEEEDTDPRRLVQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LLRQHSSPWQVYGFVRACLRRLVPPGLWGSRHNERRFLRNTKKFISLGKHAKLSLQEL
TWKMSVRGCAWLRRSPGVGCVPAAEHRLREEILAKFLHWLMSVYVVELLRSFFYVTET
TFQRNRLFFYRSVWGSKLQSIGIRQHLKRVQLRELSBAEVRQHREARPALLTSRLRFI
TKDGLRPIVNMDYVVGARTFREKREKARALTSRVALFSVLNYERARRPGLLGASVLG
LDDTHRAWRTFVLRYRQDPPPELYFWVDVTGAYDTIPQDRLTEYTASIIKPONTYC
VRRYAVVQRAAHGHVRRAFKSHVSTLTDLQPYMRQFVAHLQETSPLRDAVVIEQSSSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   see GenBank Accession
                                                                                                                                                                                                                                               Synthetic construct human telomerase catalytic subunit (hTERI/hESI2) mRNA and 3' Influenza A hemagglutinin tag, complete
                                                                                                                                                                                                                                                                                                                                                    synthetic construct
synthetic construct
articla sequence.
1 (bases 1 to 8950)
Counter, C.M., Meyerson, M., Eaton, E.N., Ellisen, L.W., Caddle, S.D.,
                                                                                                                                                                                                                                                                                                                                                                                                                             Haber, D.A. and Weinberg, R.A.
Haber, D.A. and Weinberg, R.A.
Folomerase activity is restored in human cells by ectopic expression of hTERT (hEST2), the catalytic subunit of telomerase Oncogene 16 (9), 1217-1222 (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2 (bases 1 to 8960)
Counter,C.M., Meyerson,M., Eaton,E.N., Ellisen,L.W., Caddle,S.D. Haber,D. and Weinberg,R.A.
Direct Submission
Submitted (20-0AN-1998) Whitehead Institute, 9 Cambridge Center, Cambridge, MA 02142, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          mRNA"
                                                                                                                                                                                                                                05-APR-1998
                                                 TGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAGTGTCTGGAG
/organism="Cloning vector pCI-neo"
/db_xref='taxon:45772"
1102. .4542
/note='telomerase catalytic subunit hTERT/hEST2
/organism='Homo sapiens"
/db_xref='taxon:9606"
                                                                                                                     1147. .4605
/note="telomerase/reverse transcriptase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /db_xref="taxon:32630"
/db_xref="taxon:32630"
/db_xref="mammalian expression vector;
Number U47120"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="synthetic construct"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
1. .8960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'gene-"hTERT/hEST2"
                                                                                                                                                                                                                                  DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /chromosome="5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /map="5p15.33"
1102. .4542
                                                                                                                                                                                                                                8960 bp
                                                                                                                                                                                                                                                                                                AF043739
93023054
                                                                                                                                                                                                                                                                                 sequence
                                                                                                                                                                                                                                AF043739
                                                                                                                                                                                                               N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                1752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                               RESULT
```

```
NEASSGLFDVFLRFMCHHAVRIRGKSYVQCQGIPQGSILSTILCSLCYGDMENKLFAG
IRRDGLLLRLVDDFLLVTPHLTHAKTFLRTLVRGVPEYGCVVNLRKTVVNFFYEDEAL
GGTAFVQMPAHGLFPWCGLLDTRTLEVQSDYSSYARSITASLTFNRGFKAGRNMRR
KLFGVLRLKCHSLFLDLQVNSLQTVCTNIXILLLQAYRFHACVLQLPFHQOWNRPT
FFLRVISDTASLCYSILKAKRAGAMSLGAAGPLPSEAVQMLCHQAFLLKLTRHRVY
YVPLLGSLRTAQTQLSRKLPGTTLTALEAAANPALPSDFKTILDYPYDVPDYAGYPJ
                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                     VFULLA. 4605
/hote="engineered based on the epitope for the anti-influenza virus hemagglutinin monoclonal antibody 12CA5; similar to part of the Influenza A hemaglutinin man sequence in GenBank Accession Number M29257"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1101 CGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCCCGCGATGCCGCGCGCTCC 1160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1581 CGACGACGTGCTGGTTCACCTGCTGGCACGCTGCGCGCTCTTTGTGCTGGTGGCTCCCAG 1640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1521 CACGGTGACCGACGCACTGCGGGGGAGCGGGCGTGGGGGGCTGCTGTTGCGCCGCGTGGG 1580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TAGCGTCAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCCCCGGGTGCGAGGAGGCGCGG 1820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        80
                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCCCGCCGCCCCCCTCCGTGCCAGGTGTCCTGCCTGAAGGAGCTGGTGGCCCGAGTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGGGGCCCGCGGGGCCCCCCCGAGGCCTTCACCACCAGCGTGCGCAGCTACCTGCCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTGCGCCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCTCGGCGCTGCCACTCAGGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1341 CCCCGCCCCCCCTCCTTCCGCCAGGTGTCCTGCAAGGAGCTGGTGGCCCGAGTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1401 GCAGAGGCTGTGCGAGCGCGCGCGCAAAAACGTGCTGGCCTTCGGCTTCGCGCTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGACGACGACGTGCTGGTTCACCTGCTGCACGCTGCGCGCTTTTGTGCTGGTGGTCCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TAGCGTCAGGGAGGCCGGGGGTCCCCCTGGGCCTGCCAGCCCCGGGTGCGAGGAGGCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CACGTTCGTGCGGCGCCTGGGGCCCCAGGGCTGGCGGCTGGTGCAGCGCGGGGGACCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            141 CACGTTCGTGCGCCCCTGGGGCCCCCAGGGCTGGCGGCTGGTGCAGCGCGGGGGACCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ó
                                                                                                                                                                                                                                                                                                                                                           Length 8960;
                                                                                                                                                                                                                                                                                                                                                                                                     2; Indels
                                                                                                                                                                                                                                                                                                  1 others
                                                                                                                                                                                                                                                                                                                                                         Score 1896; DB 31;
Pred. No. 0.00e+00;
0; Mismatches 2;
                                                                                                                                                                                                                                 gene sequence in GenBank Accessi
/organism="synthetic construct"
/db_xref="taxon:32630"
1 2551 c 2484 g 2038 t
                                                                                                                                                                                                                                                                                              2484 9
```

셤 õ g ò 셤 ŏ ď ò g δ

```
/product="file-"file-"file-"file-"file-"file-"file-"file-"file-"file-"file-"file-"file-"file-"file-"file-"file-"file-"file-"file-"mbraPrease catalytic subunit"

/db.zref="Ploi" "MPRAPRCRAVERSUPELTSHYREUPLATFVRLGPGGWRLVQRGDP
/translation="MPRAPRCRAVERSUPERSUPVERSUPCERGARNVLARGER
AAFRALVAQCLVCVPWDARAPPRAASEFRQVGCLLERVGDVLVHLLARCALFV
LVAPSCATOVCGPPLYQLGAATQARPPHAGPSGRRKLGCERAWNHSVBEGGVPLGLPA
PGARRGGSARSLELPENERRRGAAPEPEETPVGGGSWAHPGTRRGFSDGGCVVSPA
RPAEEATSLEGALSGTRHSHPSVGRQHHAGPPSTSRPPRPUTPCPPVYAETRKHFLYS
SGNKEGOLRSFELLSSLRPSLTGARRAVFPAAGVCAREKPOGSVAAPEEDTDPRRLVQ
LLRQHSSPWQVYGFVRACLRRLVPPGLMGSRHNERRFLRNTKKFISLGKHAKLSIQEL
TWRKNSVCGAWLRFRPCRLRAYPPAAGVCAREKPOGSVAAPEETTYPT
TWRKNSVRCGAWLRFRSBGGOGVPAABHRLREBILAKFHWLMSVYVBLLLRSFLYFT
TFOKNRLFFYRKSWGSKOGVPAABHRLREBILAKFHWLMSYVVBLLRSFLYFT
TFOKNRLFFYRKSWGSKOGVPAABHRLREBILAKFHWLMSYVVBLLRSFLYFT
TRODISLRSPLINGSTGTGRANGSTGTGANGSTGANG
LDDIHRAMTFYLYRRAQDPPPELYFWKVDVTGAYDTPODRLTFYTASIIRPONTYC
VRRYAAVORAAHGHVRRAFRSRSTTJDLOPYMRQFVAHLOETSPLRAVVIESGSSSL
NEASSGLFDYFLRRFWHHYTPLRYRTVRGVBTGGVVNLRGSSSL
NEASSGLFDYFLRRFWHHYTPLRYRTVRGVBTGGVVNLRGFGVVNLRGFG
                                                                                                                                                                                                                                                                                                                                                                                                                                              Chases 1 to 4027)
Meyerson, M., Counter, C.M., Eaton, E.N., Ellisen, L.W., Steiner, P.,
Caddle, S.D., Ziaugra, L., Beijersbergen, R.L., Davidoff, M.J., Liu, Q.,
Bacchetti, S., Haber, D.A. and Weinberg, R.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGTAFVQMPAHGLFPWCGLLLDTRTLEVQSDYSSYARTSIRASLTFNRGFKAGRNMRR
KLFGVLRLKCHSLFLDLQVNSLQTVCTNIYKILLLQAYRFHACVLQLPFHQQVWKNPT
FFLRVISDTASLCYSILKAKNAGMSLGAKGAAGPLPSEAVQWLCHQAFLLKLTRHRVT
                                                                                                                                                                                                                                                                                                                  Meyerson, M., Counter, C.M., Eaton, E.N., Ellisen, L.W., Steiner, P., Caddle, S.D., Ziaugra, L., Beijersbergen, R.L., Davidoff, M.J., Liu, Q., Bacchetti, S., Haber, D.A. and Weinberg, R.A.
hEST2, the putative human telomerase catalytic submit gene, is up-regulated in tumor cells and during immortalization (41), 785-795 (1997)
                                                                                           29-AUG-1997
mRNA, complete
                                                                                                                                                                                                                                            Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Submitted (11-AGG-1997) Whitehead Institute for Biomedical Research, Massachusetts Institute of Technology, Nine Cambridge Center, Cambridge, MA 02142, USA Location/Qualifiers 1.4027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 1895; DB 27; Length 4027;
Pred. No. 0.00e+00;
0; Mismatches 2; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               class"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YVPLLGSLRTAQTQLSRKLPGTTLTALEAAANPALPSDFKTILD<sup>1</sup>
1361 c 1277 g 715 t
                                                                                                            (hEST2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="hEST2"
/note="member of reverse transcriptase
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="5"
/map="5p15.33"
1. 4027
/note="human Ever Shorter Telomeres 2"
/gene="hEST2"
telomerase catalytic subunit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98.7%;
larity 99.9%;
Conservative
                                                                                           đq
                                                                                                                                                                                                                                                                                                (bases 1 to 4027)
                                                                                                                Homo sapiens
                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity
Matches 1897; Conser
                                                                                                                                cds.
AF018167
92347128
                                                                                                                                                                                                                                                                                                                                                                                                                                 97433088
                                                                                           AF018167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                674
                                                                                                                                                                                                           human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                         m
                                                                                                                                                                                                       SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
ORIGIN
                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
                 1881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                 ACCESSION
                                                                                                                                                                  NID
KEYWORDS
                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                         RESULT
                   ò
                                                                                                                                                                                                                                                                                               2180
                                                                                                                                                                                                                                                                                                                                                                                                             1160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2060
                                                                                                                                                                                                                                            1100
                                                                                                                                                                                                                                                                                                                                                                                                                                            GACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAGTGTCTGGAGCAAGTTGCA 1820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGGCCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTCCCCCGGTGTA 2120
                                                                                                                                                                                                                                                                                                                                                                      GCCGGAGCGGACGCCCGTTGGGCAGGGGTCCTGGGCCCACCCGGGCAGGACGCGTGGACC
                                                                                           GACCACGTTTCAAAAGAACAGGCTCTTTTCTACCGGAAGAGTGTCTGGAGCAAGTTGCA
                                                                                                                                               GGAGGGTGCGCTCTCTGGCACGCCCACTCCCATCCGTGGGCCGCCAGCACCACGC
                                                                                                                                                                                                                                                                                                CGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCGGGCCCTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGTCGCCTGGTGCAGCTCCTCCGCCAGCACCAGCCCCCTGGCAGGTGTACGGCTTCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAAGCTCTCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCAGGAGCTGACGTGGAAGATGAGCGTGCGGGGCTGCGCTTGGCTGCGCAGGAGCCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAGCATTGGAATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGGAGCTGTCGGAAGCAGA
                                      GCCGGAGCGGACGCCCGTTGGGCAGGGGTCCTGGGCCCCACCCGGGCAGGACGCGTGGACC
                                                                     GAGTGACCGTGGTTTCTGTGTGTCACCTGCCAGACCCGCCGAAGAAGCCACCTCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGTGCCCGGGAGAAGCCCCAGGGCTCTGTGGCGGCCCCCCGAGGAGGAGGACACAGACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGTCAGGCAGCATCGGGAAGCCAGGCCCGCCCTGCTGACG 3000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1701
                                  801
                                                                                                                                                                                                                       2061
                                                                                                                                                                                                                                                                                                2121
                                                                                                                                                                                                                                                                                                                                                                      2181
                                                                                                                                                                                                                                                                                                                                                                                                           1101
                                                                                                                                                                                                                                                                                                                                                                                                                                                  2241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2901
                                                                                                                                               2001
                                                                                                                                                                                    921
                                                                                                                                                                                                                                                                                                                                 1041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2781
                                                                                                          861
                                                                                                                                                                                                                                                          981
```

ద

đ

ò

ò

셤

ò g οy q ò Q ò g Q

ò

g

ò

ŏ

g

à 셤 ŏ g

g ò g

ò

ö

ATC CASE SET	ACCC ACCC ACCC ACCC AACG CCT CCT CCCT	GGGG CTG CTG CTG CTG CTG CTG CTG CTG CTG	GAG GAG GAG GAG GAG	heri ePin ring
3AGACC 3AGACC 3AGACC CTGCCC CTGCCC CAGTGC CAGTGC CAGTGC CAGTGC CAGTGC CAGTGC CAGTGC CAGTGC	GGACAAGA GGACACAGA GGACACAGA GTACGGCTTT GTACGGCTTT GGCACAACGA (GCACAACGA (GCACAACGA (GCACAACGA	GCAGGAGCCCA 	SCAAGTTG SGGAAGCA           CGGAAGCA CGAAGCA	nalia; Eut .B. and D iptase du
3AGGCTCGT 3AGGCTCGT 3ATGCCCG 3AACCACGC 11111111 3AACCACGC 1111111111111111111111111111111	CGAGGAGGA CGAGGAGGA CGGGCAGGG CTGGCAGGT CTGGCAGGT CTGGCAGGT CTGGCAGGT CTGGCAGGT CGGCTCCAG GGGCTCCAG	11166CTGC 1116CTGC 1116CTGC 11111111111111111111111111111111111	rGTCTG 3GAGCT 111111 310 920 ROD iptase	brata; Mammi rinae; Mus. L., Morin,G rse transcr roliferation
CTGGCGCTO CTGGCGCTO CTCCCCGCA CTCCCCGCA CTCCCCGCA CTCCCCGCA AGCTGCTTG AGCTGCTTG CTCCCTGCTTG CTCCCTGCTTG CTCCCTGCTTG CTCCCTGCTTG	TGGCGGCCCC TGGCGGCCCCC TGGCGGCCCCC TITITITITITITITITITITITITITITITITI	GGGGCTGC GGGACTGC GTCTGCGT (111111111111111111111111111111111111	SGTGCAG SGTGCAG SGTGCAG SGTGCAG CTTCTG CTTCTG	ta; Verte ridae; Mu C., Chin, rase reve on, and p
CCCAGCCTG	CAGGGCTCTC CAGGGCTCTC CAGGGCTCTC CTCCGCCAG CTCGCCCAG CTCGCCCAG CTGGTGCCC CTGGTGCCC CTGGTGCCC CTGGTGCCC CTGGTGCCCC AAGAAGTTCP AAGAAGTTCP AAGAAGTTCP	AGCGTG	ACTEGAGG 	AB KET
CCTGAGG  CCTGAGG  CCTGAGG  CCTGAGG  CCCTGG  CC	GAGAAGCC GTGCAGCT GTGCAGCT GTGCAGCT GTGCGCCG CTGCGCCG CTGCGCCG	ACGTGGAA ACGTGGAA STTCCGGC STTCCGGC STTCCGGC TILLILL ATGAGTGT ATGAGTGT CAAAAGAA		mouse. sculus obta; Metazoa; Chor la, Sculurognathl; la, Sculurognathl; ses 1 to 3426) erg,R.A., Allsopp, srion of mouse telo pment, differentia nne (1998) In press ises 1 to 3426)
11111111111111111111111111111111111111	11111111111111111111111111111111111111	CAGGAGCTG	ACCACGE AGCATTG AGCATTG AGCATTG AGCATTG AGCATTG AGCATTG AGCATTG AGCATTG AFOSI AFOSI AFOSI	g30055 house Mus mu mus mu Eukary Rodent 1 (ba Greenk Express develc Oncoge
	3 3 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1572 1582 1632 1642 1702 1702 1752	1/6 181 182 182 188 188 15 15 181111	40RDS RCE RGANI SRENC JTHOR ITLE
		6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	(O (1) (L)	NID KEYV SOUF OF OF TI

9

```
1082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1104
                                                                                                                                                                                                                                                                                                        674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1464
      471
                                                494
                                                                                        531
                                                                                                                                  554
                                                                                                                                                                          591
                                                                                                                                                                                                                      614
                                                                                                                                                                                                                                                                                                                                                                                         734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δλ
                                            ద
                                                                                      δ
                                                                                                                             g
                                                                                                                                                                            ò
                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                         유
                                                                                                                                                                                                                                                                                                                                                                                                                               οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                       LUPESCAYOVCES PLYOLOGY TO THE TABLE TABLE THE TABLE TABL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LPAHCLFPWCGLLLDTQTLEVFCDYSGYAQTSIKTSLTFQSVFKAGKTMRNKLLSVLR
KRGGLEDLOQVNSLQTVCINYKTELLQAYRFHACVTQLPFDQRVRKNLTFFLGIIS
SQASCCYAILKVKNFGMTLKASGSFPPEAHNLCYQAFLLKLAAHSVIYKCLLGFLRT
AQKLLCRKLPEATWTILKAAADPALSTDFQTILD"
                                                                                                                                                                                                                                                                                                                       /db_xref="PID:93005592"
/translation="MTRAPRCPAVRSLLRSRYREVWPLATFVRRLGPEGRRLVQPGDP
                                                                                                                                                                                                                                                                                                                                                                   KIYRTLVAQCLVCMHWGSQPPPADLSFHQVSSLKELVARVVQRLCERNERNVLAFGFE
LLNEARGGPPMAFTSSVRSYLPNTVIETLRVSGAWMLLLSRVGDDLLVYLLAHCALYL
Greenberg, R.A., Allsopp, R.C., Chin, L., Morin, G.B. and DePinho, R.A. Direct Submission
Submitted (02-MAR-1998) Microbiology and Immunology, Albert
Einstein College of Medicine, 1300 Morris Park Ave., Bronx, NY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGTGCTGGCTTTTGGCTTTGAGCTGCTTAACGAGGCCAGAGGCGGGCCTCCCATGGCCTT 373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAGCCGATACCGGGAGGTGTGGCCGCTGGCAACCTTTGTGCGGCGCCCTGGGGCCCCGAGGG 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAGGCGCCTTGTGCAACCCGGGGACCCGAAGATCTACCGCACTTTGGTTGCCCAATGCCT 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATCCCTGAAAGAGCTGGTGGCCAGGGTTGTGCAGAGACTCTGCGAGCGCAACGAGAAA 313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGIGCTGGCCTTCGGCTTCGCGCTGCTGGACGGGGCCCGCGGGGGCCCCCCCGAGGCCTT 410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CACTAGTAGCGTGCGTAGCTACTTGCCCAACACTGTTATTGAGACCCTGCGTGTCAGTGG 433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGCATGGATGCTACTGTTGAGCCGAGTGGGCGACGACCTGCTGGTCTACCTGCTGGCACA 493
                                                                                                                                                                                                                 /map="MGD offset position 40; 40 cM from centromere"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 453; DB 28; Length 3426;
Pred. No. 0.00e+00;
0; Mismatches 592; Indels 84;
                                                                                                                                                                                                                                                                               /codon_start=1
/product="telomerase_reverse transcriptase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             794 t
                                                                                                                             1. .3426
/organism="Mus musculus"
/db_xref="taxon:10090"
/chromosome="13"
                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          907 g
                                                                                                                                                                                                                                                           /note="mTERT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 23.6%;
Best Local Similarity 64.3%;
Matches 1216; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               O
                                                                                                                                                                                                                                        .3398
                                                                                   10461, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   =
=
                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             434
  AUTHORS
                                            JOURNAL
                                                                                                                                                                                                                                        CDS
                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g. 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
```

```
1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTTCTTTAAGGAACTTAAAGAAGTTCATCTCGTTGGGGAAATACGGCAAGCTATCACTGCA 1516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTCCACATCTCTGCTGTCACCACCCCGCCAAAATGCCTTTCAGCTCAGGCCATTTATTGA 1021
                                                                                                                                                                                                                                                                                           613
                                                                                                                                                                                                                                                                                                                                                                                           650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              983
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCTCACCAGTACAAGTGTGCCTTCAGCTAAGAAGGCCAGATGCTATCCTGTCCCGAGAGT 793
GGCGTGGGGGCTGCTGCGCCGCGTGGGCGACGACGTGCTGGTTCACCTGCTGGCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCGCCAGGAAGCACCGCAAACCCCTGGCCTTGCCATCTCGAGGTACAAAGAGGCATCTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGACCGTGGTTTCTGTGTGTGTCACCTGCCAGACCCGCCGAAGAAGCCACCTCTTTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCGCCTGGTGCAGCTCCGCCAGCAGCAGCCCCTGGCAGGTGTACGGCTTCGTGCG
                                                                                                                                                       GTACCAAATTTGTGCCACCACGGATATCTGGCCCTCTGTGTCCGCTAGTTACAGGCCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGAGGGACGCCCGTTGGGCAGGGGTCCTGGGCCCACCCGGGCAGGACGCGTGGACCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGGTGCGCTCTCTGGCACGCGCCACTCCCACCCATCCGTGGGCCGCCAGCACCACGCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGGCTCAAGGCCTAGGACATCAGGACCACTCTGCAGGACACACCGTCTATCGCGTCGATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CIGGCAGATGCGGCCCCTGTTCCAACAGCTGCTGGTGAACCATGCAGGCGCCAATATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAGACTCCTCAGGTCACATTGCAGGTTTCGAACAGCAAACCAACAGGTGACAGATGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGTGCTCCTCAAGACGCACTGCCGCTGCGAGCTGCGGTCACCCCAGCAGCCGGTGTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGCCTGTCTCTGCAAGGTGGTGTCTGCTAGTCTCTGGGGTACCAGGCACAATGAGCGCCG
                                                                                                CTGTGCTCTTTATCTTCTGGTGCCCCCCAGCTGTGCCTACCAGGTGTGTGGGGTCTCCCCT
                                                                                                                                                                                                                                                                                                                                                                                      GTACCAGCTCGGCGCTGCCACTCAGGCCCGGCCCCGCCACACGCTAGTGGACCCCGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGACCCGTGGGCAGGAATTTCACTAACCTTAGGTTCTTACAACAGATCAAGAGCAGTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       684 CGTCAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCCCCGGGTGCGAGGAGGCGGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGAGGAGGCACCCCACAGGCAGGTGCTACCAACCCCATCAGGCAAATCATGGGTGCCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCCTGCTCGGTCCCCGAGGTGCCTACTGCAGAGAAGATTTGTCTTCTAAAGGAAAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTCTGACCTGAGTCTCTCTGGG------TCGGTGTGCTGTAAACACAAGCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cececeárecaeareseseseses de acesta de consesa de consesa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1022 GACCAGACATITCCTTTACTCCAGGGGAGATGGCCAAGAGCGTCTAAAACCCCTCATTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACTCAGCAACCTCCAGCCTAACTTGACTGGGGGCCAGGAGACTGGTGGAGATCATCTTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CIGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCAGTGCCCCTACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----GAACAGCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1337 GCACCTCATGGATTTGCTCCGCCTGCAGCAGTCCCTGGCAGGTATATGGTTTTCTTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
```

8

ò

ద

ò

ö

셤 ò 셤 ò g δ

```
BASE COUNT
ORIGIN
                                                                                                                                     67
                                                                                                                                                                                                                                                                                                       247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         880
                                                                                                                                                               61
                                                                                                                                                                                           127
                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                            307
                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                  367
                                                                                                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    901
                                                                                                                                                                                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                     ö
                                                                                                                                                              요
                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                      οy
                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="telomerase catalytic subunit"
/db_xref="PID:93551847"
/db_xref="PID:93551847"
/translation="MTRAFROPAVRSLLRSRYREVWPLATFVRLGPEGRRLVQPGDP
KIYPTLAPACCLYCMRNGSOPPADLGFHQVSSLKELVARVQRLCERNERRYLAFGFE
LLNEARGGPPMAFTSSVRSYLPNTVIETLRVSGAWMLLLSRVGDDLLVYLLAHCALYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FVLRVRALDGTPRMYFVKADVTGAYDAIPQGKLVEVVANMIRHSESTYCIRQYAVVRR
DSQGQVHKSFRRQVTTLSDLQPYMGQFLKHLQDSDASALRNSVVIEQSISMNESSSSL
FDFFLHFLRHSVVKIGDRCYTQCQGIPQGSSLSTLLCSLCFGDMENKLFAEVQRDGLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LREVDDFLLVTPHLDQAKTELSTLVHGVPEYGCMINLQKTVVNFPVEPGTLGGAAPYQ
LPAHCLFPWGGLLLDTQTLEVFCDYSGYAQTSIKTSLTFQSVFKAGKTMRNKLLSVLR
LKCHGLFLDLQVNSLQTVCINIYKIFLLQAYRFHACVIQLPFDQRVRKNLTFFLGIIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NMSYSMGTRALGRRKQAQHFTQRLKTLFSMLNYERTKHPHLMGSSVLGMNDIYRTWRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2 (bases 1 to 3369)
Martin-Rivera,L., Herrera,E. and Blasco,M.A.
Birect Submission
Bibmitted (19-1908) Immunology and Oncology, National Centre
Biotechnology, Cantoblanco, Madrid 28049, Spain
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 and
            CACATICCAGAAGAGCACTCTICIACCGTAAGAGTGTGTGGAGCAAGCTGCAGAG 1756
                                                                                                                                                                                                                                 GGAACTGATGTGGAAGATGAAAGTAGAGGATTGCCACTGGCTCCGCAGCAGCCCGGGGAA 1576
                                                   CTGGCTGATGGACACATACGTGGTACAGCTGCTTAGGTCATTCTTTTACATCACAGAGAG 1696
                                                                                                                                  CTGGCTGATGAGTGTACGTCGTCGAGCTGCTCAGGTCTTTTTTATGTCACGGAGAC 1763
                                                                                                                                                                                           CACGTITCAAAAGAACAGGCTCTITITCTACCGGAAGAGTGTCTGGAGCAAGTTGCAAAG 1823
                                                                                                                                                                                                                                                                                                                                                            3369 bp mRNA ROD 09-SEP-1998 telomerase catalytic subunit mRNA, complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                           Mus musculus
Bukaryota, Matazoa, Chordata, Vertebrata, Mammalia, Eutheria,
Rodentia, Sciurognathi, Muridae, Murinae, Mus
1 (bases 1 to 3369)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Martin-Rivera, L., Herrera, E., Albar, J.P. and Blasco, M.A. Expression of mouse telomerase catalytic subunit in embryos adulit tissues Proc. Natl. Acad. Sci. U.S.A. 95 (18), 10471-10476 (1998) 98393668
                                                                                                                                                                                                                    CATTGGAGTCAGGCAACACCTTGAGAGAGTGCGGCTACGGGAGCTGTCACAAGAGGAGGT
                                                                                                                                                                                                                                                                          CAGGCATCACCAGGACACCTGGCTAGCCATGC 1848
                                                                                                                                                                                                                                                                                        /organism-"Mus musculus"
/db_xref-"taxon:10090"
1. .3369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1. .3369
                                                                                                                                                                                                                                                                                                                                                         AF073311 3
Mus musculus t
AF073311
g3551846
                                                                                                                                                                                                                                                                                                                                                                                                                               onse mouse
                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
TITLE
                                                                             1644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE
REFERENCE
                        1584
                                                   1577
                                                                                                                                  1704
                                                                                                                                                                                         1764
                                                                                                                                                                                                                                              1824
                                                                                                                                                                                                                                                                          1817
                                                                                                                                                                                                                                                                                                     1884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
1517
                                                                                                                                                               1697
                                                                                                                                                                                                                    1757
                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SGS
                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
```

```
SQASCCYAILKVKNPGMTLKASGSFPPEAAHWLCYQAFLLKLAAHSVIYKCLLGPLRT
AQKLLCRKLPEATWTILKAAADPALSTDFQTILD"
959 c 891 g 782 t
                                                                                                                 3,
                                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GIGCCTICAGCIAAGAGGCCAGAIGCTAICCIGICCGAGAGIGGAGGGACCCCAC 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       900
                                                                                                                                                                                                                                                                                180
                                                                                                                                                                                                                                                                                                               246
                                                                                                                                                                                                                                                                                                                                                                                306
                                                                                                                                                                                                                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                                                                                                                                                                                                                               366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       940 ACGCGCCACTCCCACCCATCCGTGGGCCGCCACCACGCGGGCCCCCCATCCACATCG 999
                                                                                                                                                                                                                 GIGTGGCCGCTGGCAACCTTTGTGCGGCGCCTGGGGCCCGAGGGCGGCGGCTTGTGCAA 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  664
                                                                                                                                               1 ATGACCCGCGCTCCTCGTTGCCCCGCGGTGCGCTCTCTGCTGCCGCAGCCGATACCGGGAG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  760 creccerrecceaagageccaagecergecerreccerreagecgaagegacgecerr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGGCAGGTGCTACCAACCCCATCAGGCAAATCATGGGTGCCAAGTCCTGCTCGGTCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   820 GGCAGGGGTCCTGGGCCCACCCGGGCAGGACGCGTGGACCGAGTGACCGTGGTTTCTGT
                                                                                                                                                                  GGCTCACAGCTCCACCTGCCGACCTTTCCTTCCACCAGGTGTCATCCCTGAAAGAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                  TTGAGCCGAGTGGGCGACGTGCTGGTCTACCTGCTGCACACTGTGCTCTTTATCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  541 ACCACGGATATCTGGCCCTCTGTGTCCGCTAGTTACAGGCCCACCCGACCCGTGGGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCACTCAGGCCCCGGCCCCGCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGCTACTTGCCCAACACTGTTATTGAGACCCTGCGTGTCAGTGGTGCTGGATGCTACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AATITCACTAACCTTAGGTTCTTACAACAGATCAAGAGCAGTAGTCGCCAGGAAGCACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -------AACGGGCCTGGAACCATAGCGTCAGGGAGGCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   661 AAACCCCTGGCCTTGCCATCTCGAGGTACAAAGAGGCATCTGAGTCTCACCAGTACAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAGGTGCCTACTGCAGAGAAGATTTGTCTTAAAGGAAAGGTGTCTGACCTGAGTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTGGTGTCACCTGCCAGACCCGCCGAAGAAGCCACCTCTTTGGAGGGTGCGCTCTCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCTGGG-------TCGGTGTGTGTAAACACAAGCCCAGCTCCACATCTCTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                 GTGGCCAGGGTTGTGCAGAGACTCTGCGAGGGCAACGAGAAAACGTGCTGGCTTTTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  84;
                                                                                Length 3369;
                                                                                                               Indels
                                                                              Score 451; DB 28; L
Pred. No. 0.00e+00;
0; Mismatches 585;
                                                                              23.5%;
larity 64.3%;
Conservative
                                                                                               1207; Conser
                                  ø
                              737
                                                                                  Query Match
                                                                                                 Best Local
Matches 13
```

œ

```
Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unknown
                                                                                                                                                                                                                                                                                                          51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                         BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
JOURNAL
                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                     Н
                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                               JOURNAL
                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                               CDS
                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                               δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                       1323
                                                                                                                                                                                                                                                                                                                                                                       1180 AFGCCAGGGGACTCCCCGCAGGTTGCCCCCCCCCCCACCCCTACTGCGGCCCC 1239
                                                                                                                                                                                                                             1300 CACTGCCGCTGCGAGCTGCGGTCACCCCAGCAGCCGGTGTCTGTGCCCGGGAGAAGCCC 1359
                                                                                                                                                                                                                                                                                                                                      AAGAAGTICATCTCGTIGGGGAAAIACGGCAAGCIATCACIGCAGGAACTGATGTGGAAG 1503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1600 ATGAGCGTGCGGGACTGCGCTTGGCTGCGCAGGGGTTGGCTGTGTTCCGGCC 1659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1000 ceccaccaccaccrecescacccrrerecccceerareccesasccaaccarctr 1059
                                                                                                                                 1120 cccagccrgacrgcccrcgaggcrccrggagaccarcrrrcrgggrrccaggcccrgg 1179
                                                                                                                                                            ACATCAGGACCACTCTGCAGGACACACCGTCTATCGCGTCGATACTGGCAGATGCGGCCC 1188
                                                                                                                                                                                                               CTGTTCCAACAGCTGCTGGTGAACCATGCAGAGTGCCAATATGTCAGACTCCTCAGGTCA 1248
                                                                                                                                                                                                                                                                  CATTGCAGGTTTCGAACAGCAAAACCAACAGGTGACAGATGCCTT-------1292
                                                                                                                                                                                                                                                                                                                                                                                                                            1384 GTGGTGTCTGCTAGTCTCTGGGGTACCAGGCACAATGAGCGCCGCTTCTTAAGAACTTA 1443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1540 AAGAAGTICAICTCCCTGGGGAAGCAIGCCAAGCICTCGCTGCAGGAGCTGACGTGGAAG 1599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGAAAGTAGAGGATTGCCACTGGCTCCGCAGCAGCCGGGGAAGGACCGTGTCCCCGCT 1563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCAGAGCACCGTCTGAGGAGGAGCATCCTGGCTACGTTCCTGTTCTGGCTGATGGACACA 1623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TACGTGGTACAGCTGCTTAGGTCATTCTTTTACATCACAGAGAGCACATTCCAGAAGAAC 1683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1684 AGGCTCTTCTTCTACCGTAAGAGTGTGTGGAGCAAGCTGCAGAGCATTGGAGTCAGGCAA 1743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            949 TCACCACCCCCCAAAATGCCTTTCAGCTCAGGCCATTTATTGAGACCAGACATTTCCTT 1008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1744 CACCTTGAGAGAGTGCGGCTACGGGAGCTGTCACAAGAGGAGGTCAGGCATCACCAGGAC 1803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  201 bp mRNA ROD 12-NOV-1997 telomerase catalytic subunit mRNA, partial cds.
                                                                   1060 CTCTACTCCTCAGGCGACAAGGAGCAGCTGCGGCCCCTCCTACTCAGTCTCTAGGG
                                                    TACTCCAGGGGAGATGGCCAAGAGCGTCTAAACCCCTCATTCCTACTCAGCAACCTCCAG
                                                                                                        CCTAACTIGACIGGGGCCAGGAGACIGGIGGAGAICAICITICIGGGCTCAAGGCCIAGG
                                                                                                                                                                                                                                                                                                                     1293 ---------GAACACCACCACCACCACCACCACCACCATTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1804 ACCTGGCTAGCCATGC 1819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1900 GCCAGGCCCGCCTGC 1915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mus musculus t
AF029235
g2605902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AF029235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NID
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCUS
DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                               1189
                                                                                                                                                                                                                                                                 1249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1624
                                                                                                                                                           1129
                                                                                                         1069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
엄
                           ò
                                                  Б
                                                                             ö
                                                                                                       요
                                                                                                                                 ò
                                                                                                                                                        g
                                                                                                                                                                                 ò
                                                                                                                                                                                                             g
                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                    요
                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                           음
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
```

house mouse. Mus musculus

```
/product="telomerase catalytic subunit"
/db_xref="PID:92605903"
/tanslation="FFYORSTFFYRKSVWSKLQSIGVRQHLERVRLRELSQ
FEVRHADPTCRLRFIPF
54 c 41 t
                                                                                                                                              Drissi, R. and Cleveland, J.L.
Drisct Submission
Submitted (07-007-1997) Biochemistry, St jude Children's Research
Hospital, 332 North Lauderdale, Memphis, TN 38105, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        981 GGGCCCCCCATCCACGGCCACGACGACGTGGGACACGCCTTGTCCCCCGGTGTA 1040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1744 TICTITIATGICACGGAGACCACGITICAAAAGAACAGGCTCTITITCTACCGGAAGAGT 1803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1804 GTCTGGAGCAAGTTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGTGCAGCTGCGG 1863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryotae; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. 1 (bases 1 to 201) Drissi, R. and Clevaland, J.L. Partial sequence of Mus musculus telomerase catalytic subunit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           23-DEC-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ITCITITATGICACGGAGGGCACATTCCAGAAGAACAGGCTCTTCTTCTACCGTAAGAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGTGGAGCAAGCTGCAGAGCATTGGAGTCAGGCAACACCTTGAGAGAGTGCGGCTACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121 GAGCTGTCACAAGAGGAGGTCAGGCATCACCAGGACACCTGGCTAGCCATGC 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 201;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 7218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 110; DB 28; Length 201
Pred. No. 3.62e-55;
0; Mismatches 31; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 3.5%; Score 67; DB 21; Length 721
Best Local Similarity 2.4%; Pred. No. 6.05e-25;
Matches 9; Conservative 211; Mismatches 153; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 (bases 1 to 7218)
Dorner,F., Scheiflinger,F. and Falkner,F.Gunter.
Recombinant fowlpox virus
Patent: US 5670367-A 14 23-SEP-1997;
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1929 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5670367
                                                                                                                                                                                                                                                                                                 /organism="Mus musculus"
/db_xref="taxon:10090"
/cell_line="32D.3"
                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="unknown"
1491 c 1486 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         166494 7218 bp DNA Sequence 14 from patent US 166494 92724471
                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 5.7%;
Best Local Similarity 82.0%;
Matches 141; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .7218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unknown.
Unclassified.
                                                                                                           homolog
Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

```
.8185)
                                                                                                                                                                                                                                                                                                                                                                                                       /db_xref-"taxon:9606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3707. .3728
/note="(A)22"
/rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /rpt_family="Alu"
complement(7830.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /rpt_family="Alu"
2295. .2438
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /rpt_unit=A
4366. .4661
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3327. .5602
/rpt_family="Alu"
5586. .6956
                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="LBNL H175"
893. .1030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3431. .3724
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       586. .6956
rpt_family="L1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                             chromosome="5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                647. .6684
note="(CA)19"
                                                                                                                                                                                                                                                                                                                                                                                                                                /clone="119j3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2818. .2859
/note="(GT)21"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          rpt_unit=CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /rpt_unit=GT
                                                                                                                                                                          (bases 1 to 74371)
                                                                                                                                                                                                                                                                                         Direct Submission
                                                             Homo sapiens
                                                                                                                                                               Unpublished
                                                                                                                                                                                     Ricke, D.O.
sequence.
AC005369
93367505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                 human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                            ORGANISM
                                                                                                                                                TITLE
JOURNAL
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
                      NID
KEYWORDS
SOURCE
                                                                                                 REFERENCE
                                                                                                              AUTHORS
                                                                                                                                                                                                                           JOURNAL
           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCUS AC005369 74371 bp DNA PRI 01-AUG-1998
DEFINITION Homo sapiens chromosome 5, BAC clone 119j3 (LBNL H175), complete
                                                                                                                            TCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCGCCTGCCCAGCG 1220
                                                                                                                                                                              1221 CTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCAGTGCCCCTA 1280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1850 CICTICAAGIGCIGICIGATICCAAIGCITIGCAACITIGCIGCICGAGACACITICGGGIAG 1791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCGGCCCTCCTT 1100
                                                           CCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGGAGACCATCTT 1160
                                                                                                           1910 GCGGGCCTGGCTTCCCGATGCTGCCTGACTTCCGACAGCTCCCGCAGCTGCACC 1851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1670 CGGTGCTCTGCGGCCGGAACACACCCAACCCCTGGGCTCCTGCGCAGCGCAAGCGCAGTCC 1611
          23-DEC-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1610 GGCAGGCTCATCCTCCACGTCAGCTCCTGCAGGGAGGCTTGGCATGCTTCCCC 1557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 7218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 368 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2.3%; Score 44; DB 21; Length 721 larity 0.8%; Pred. No. 4.31e-10; Conservative 196; Mismatches 155; Indels
                                                                                                                                                                                                                                                                                                                                                                                         1 (bases 1 to 7218)
Dorner,F., Schedfilinger,F. and Falkner,F.Gunter.
Recombinant fowlpox virus
Patent: US 5670367-A 14 23-SEP-1997;
                                                                                                                                                                                                                                                                                         PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1929 t
                                                                                                                                                                                                                                                                    7218 bp DNA Sequence 14 from patent US 5670367. 166494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="unknown"
1491 c 1486 g
                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                              1415 YYYYYYYYYY 1427
                                                                                                                                                                                                                                    1281 CGGGGTGCTCCTC 1293
                                                                                                                                                                                                                                                                                                                                                                                Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1944 a
                                                                                                                                                                                                                                                                                                                                                       Unknown
                                                                                                                                                                                                                                                                                                                                                                     Unknown
                                                                                                                                                                                                                                                                            œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6
                                                                                                                                                                                                                                                                                                                                                     SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
TITLE
JOURNAL
                                   1041
                                                                                  1101
                                                                                                                                    1161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
          윱
                                                                                                                                                           g
                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Сp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   c<sub>D</sub>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                   ð
                                                                                  ö
                                                                                                          g
                                                                                                                                   ò
                                                                                                                                                                                     à
                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
```

```
Large Scale Sequence Analysis and Annotation with the Sequence Comparison Analysis (SCAN) System Unpublished (174371)
Eukaryota: Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Primetes; Catarrhini; Hominidae; Homo.

1 (bases 1 to 74371)

Kimmerly,W., Bondoc,M., Cheng,J., Connolly,K.S., Gunning,K.M., Radner,K., Miquel,T., Miller,C., Pitluck,S., Pollard,M., Subramanian,S. and Martin,C.H..

Sequencing of human chromosome 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Kimmerly, W., Bondoc, M., Cheng, J., Connolly, K.S., Gunning, K.M., Davis, C.A., Kadner, K., Miguel, T., Pitluck, S., Pollard, M., Rojeski, H., Subramanian, S. and Martin, C.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted (01-MUG-1998) Human Genome Center, DOE Joint Genome Institute, Lawrence Berkeley National Laboratory, MS 74-157, Berkeley, CA 94720, U.S.A.
DOE Joint Genome Institute...
Location/Qualifiers
L. 74371
/organism."Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /standard_name="RLF"
/note="65% % 69% protein identity GenPept:U22377"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /standard_name="possible repeat"
8258. .8503
/rpt_family="Alu"
07070. .9387
/rpt_family="Alu"
complement(9740. .9845)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            oin(3246. .3410,3721. .3828)
```

```
standard_name="possible repeat"
3022. 23336
rpt_family="Alu"
3473. 23761
                                                                                                                                                                                                                                                                                                    'standard_name="possible repeat"
5300. .15613
'rpt_family="Alu"
6671. .1669
'note="(T)20"
                                                                                                                                                                                                                                                                                                                                                                                                                             /rpt_family="MER42"
complement(17678..18276)
/rpt_family="Alu"
19305..19583
/rpt_family="MER42"
complement(10440. .11015)
/rpt_family="Alu"
11950. .1250
/rpt_family="Alu"
12057. .12085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /rpt_unit=GTTT
complement(19943. .20222)
/rpt_family="Alu"
21202. .21496
/rpt_family="Alu"
21736. .22035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /rpt_family="Alu"
?7191. .27477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  22321. .22457
/rpt_family="Alu"
:omplement(22638. .22981)
                                                                                                                                                                                                                                                                                                                                                                                                        complement(16675, .16977)
/rpt_family="Alu"
complement(16993, .17085)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /rpt_family="MER42"
complement(25349. .25713)
/rpt_family="Alu"
complement(25727. .26471)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /rpt_unit=A
:complement(24639. .24694)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /rpt_family="Alu"
23744. .23767
/note="(A)24"
                                                                                                                                                                                                                            13783. 14024
/rpt_family="L1"
14175. 14470
/rpt_family="Alu"
complement(14906.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /rpt_family="Alu"
22017. .22038
/note="(A)22"
/rpt_type=tandem
/rpt_unit=A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    27191. .27477
/rpt_family="Alu"
27774. .28057
/rpt_family="Alu"
28040. .28066
/note="(A)27"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /rpt_family="Alu"
19914. 19945
/note="(GTTT)8"
/rpt_type=tandem
                                                                           12057...12085

/note="(A)29"

/rpt_type=tandem

/rpt_unit=A

/rpt_femily="Alu"

/rpt_femily="Alu"

13727...13750

/note="(AC)12"

/rpt_type=tandem

/rpt_unit=AC

13783...14024
                                                                                                                                                                                                                                                                                                                                                                              rpt_type=tandem
rpt_unit=T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rpt_type=tandem
                   repeat_region
                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                    repeat_region
                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                               repeat_region
                                                                                                                                                                     repeat_region
```

```
complement(3755. 37554)

Complement(3755. 37554)

Anote="GRAIL 2 excellent exon, frame 0" 38578,38741. 38995, 39071. 3205,35952. 39630,39935. 40048,40300. .40410,4053. .40661,41868. .41972,42103. .42255,42492. .42569,44379. .44507)]

Astandard_name="histidy1-tRNA synthetase" //standard_name="histidy1-tRNA synthetase" //note="78%-100% protein identity GenPept:U18937" //note="GRAIL 2 excellent exon, frame 0" complement(38462. .38215)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Db 15955 CKSSKCWCWSYRMRNKCYSCSYCYCSSGKKYWCRCSMYWYTCYYSYKYYWSMSYCTCTSW 16014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              30-OCT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
/rpt_unit=A
28712. .28930
/rpt_annily=MRE20"
/rpt_fannily=MRE20"
/rote="GRAIL_2 excellent exon, frame 0"
28987. .29214
/rpt_family="Alu"
/rpt_family="Alu"
/rote="GRAIL_2"
/standard_name="Alor3942"
/standard_name="Alor3942"
/rote="GRAIL_2 excellent exon, frame 2"
/rote="GRAIL_2 excellent exon, frame 2"
/rpt_family="MAR"
/rpt_family="MAR"
/rpt_family="MAR"
/rote="GRAIL_2 excellent exon, frame 1"
/rote="GRAIL_2 excellent exon, frame 2"
/rpt_Annily="MAR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 37; DB 26; Length 74371;
Pred. No. 5.98e-06;
50; Mismatches 25; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(33670. 33785)
/rpt_family="Alu"
complement(34021. 34144)
/note="GRAIL 2 excellent exon, frame 2"
complement(35238. 35331)
/note="GRAIL 2 excellent exon, frame 1"
36392. 36663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /rpt_family="Alu"
37921
37010: 37222
/note="100% identity EST ou55c09.x1"
/db_xref="dbEST:AI025011"
350901: 37164
/standard_name="STISG-9983"
/db_xref="dbSTS:G26554"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LOCUS 128278 215 bp DNA
DEFINITION Sequence 5 from patent US 5569830.
ACCESSION 128278
NID 91819054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Db 16015 GWRWMWSKGRSWMYASRSGCSCSCSMC 16041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | :::: |:: : : : |:|: : : | GCCACACAC 633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rpt_family="Alu"
2977. .33088
'rpt_family="MLT1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Note: remainder of annotations omitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 1.9%;
Best Local Similarity 13.8%;
Matches 12; Conservative
                                repeat_region
                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                               misc_feature
                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
```

```
AC005369 74371 bp DNA .... PRI 01-AUG-1998
Homo sapiens chromosome 5, BAC clone 119j3 (LBNL H175), complete
                                                                                                                                                                                                 Homo sapiens
Eukaryota; Metazoa; Chordata; Vertebrata; Mammalla; Eutheria;
Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 74371)
Kimmerly, W., Bondoc, M., Cheng, J., Connolly, K.S., Gunning, K.M.,
Kadner, K., Miguel, T., Miller, C., Pitluck, S., Pollard, M.,
Rojeski, H., Subramanian, S. and Martin, C.H.
                                                                                                                                                                                                                                                                                                                                                                                                                            2 (bases 1 to 74371)
Ricke.D.O.
Large Scale Sequence Analysis and Annotation with the Sequence
Comparison Analysis (SCAN) System
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Outpublished

Joseph London, Charles (Control of Street Control of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (01-M0G-1998) Human Genome Center, DOE Joint Genome Institute, Lawrence Berkeley National Laboratory, MS 74-157, Berkeley, CA 94720, U.S.A.
Sequence submitted by:
DOE Joint Genome Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /rpt_type=tandem
/rpt_unit=GT
Join(3246 . 3410,3721. .3828)
/standard_name="RLF"
/note="65% & 69% protein identity GenPept:U22377"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /rpt_family="Alu"
complement(7830. .8185)
/standard_name="possible repeat"
8258. .8503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1. .74371
/organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /chromosome="5"
/note="LBNL H175"
893. 1030
/rpt_family="Alu"
2295. 2438
/rpt_family="Alu"
2818. 2859
/note="(GT)21"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3431. .3724
/rpt_family="Alu"
3707. 3736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5377...5602
/rpt_family="Alu"
5886...6956
/rpt_family="L1"
6647...6684
/note="(CA)19"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .366. .4661
rpt_family-"Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /clone="119j3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1707. .3728
'note="(A)22"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 rpt_unit=CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /map="5g"
                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished
                                                                          sequence.
AC005369
g3367505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                            human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
     12
                                                                                                                                                KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                      DEFINITION
                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
REFERENCE
                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1615 AGTCCCGCACGCTCATCTTCCACGTCACCTCCAGCGAGAGCTTGGCATGCTTCCCCA 1556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unclassified.

1 (bases 1 to 215)

1 (bases 1 to 215)

Bennett, A., Lebavitch, J.M., Powell, A. and Stotz, H.
Plant inhibitors of fungal polygalacturonases and their use to control fungal disease
Patent: US 5569830-A 5 9-02T-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 (bases 1 to 215)
Bennett,A., Labavitch,J.M., Powell,A. and Stotz,H.
Plant inhibitors of fungal polygalacturonases and their use to control fungal disease
Patent: US 5569830-A 5 29-OCT-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        83 HTNVSGADSKTVTDSYNASGTSSSNGGTDGNRSGADSYGSSKTAMTSRNRTGKTANNAVD 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    66 YNYGGNNVGAAKTHYYTHTNVSGADSKTVTDSYNASGTSSSNGGTDGNRSGADSYGSSKT 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      126 AMTSRNRTGKTANNAVDSRNMGDASVGSDKNTKKHAKNSADGKVGSKNNGDRNNRYGTGT 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       143 SRNMGDASVGSDKNTKKHAKNSADGKVGSKNNGDRNNRYGTGTKSNVSNNCGGGNKRDVS 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               30-0CT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6 MSSSSVVSRTASCNDKAKKDGNTTSSWTTDCCNRTWGVCDTDTTYRVNNDSGHNKYSSAN 65
                                                                                                                                                                                                                                                                                                                                                                                                                            0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Gaps
                                                                                                                                                                                                                                                                                                                                                                           Length 215;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 215;
                                                                                                                                                                                                                                                                                                                                                                         Score 34; DB 21; Length 215,
Pred. No. 2.93e-04;
56; Mismatches 59; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 35; DB 21; Length 215.
Pred. No. 8.13e-05;
76; Mismatches 95; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  141 others
                                                                                                                                                                                                                                                                                                     141 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PAT
                                                                                                                                                                                                                                                                                                   26 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  26 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1/8278 215 bp DNA
Sequence 5 from patent US 5569830.
128278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism-"unknown"
8 c 25 g
                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                    /organism="unknown"
8 c 25 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1435 rgcrgrgcrggcggAgc 1419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ouery Match 1.8%;
Best Local Similarity 13.2%;
Matches 26; Conservative
                                                                                                                                                                                                                                                                                                                                                                         Query Match 1.8%;
Best Local Similarity 12.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KSNVSNNCGGGNKRDVS 202
                                                                                                                                                                                                                                                                                                                                                                                                                          17; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            203 SYANNKCCGSSC 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        250 GCACGCCGCCC 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Jnclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15 a
                                                                                                                                                                                                                                                                                                15 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     91819054
                       Unknown.
                                                      Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Jnknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
ORIGIN
                                                ORGANISM
                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                           AUTHORS
                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
KEYWORDS
                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                        ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           а
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        움
```

```
36901. .37164

/standard_name="STSG-9983"

/db_xxef="dbSTS:G2554"

complement(37555). .37554)

/note="GRAIL 2 excellent exon, frame 0"

/note 2 exon, frame 0"

/note 2 excellen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Db 15923 STSKCSCMSRSKSKRGWGYRSWKKYRCAMWMTCKSSKCWCWSYRMRKCYSCSYCYCSSG 15982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15983 KKYWCRCSMYWYTCYYSYKYYWSMSYCTCTSWGWRWMWSKGRSWWYASRSGCSCSCSMCM 16042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16043 MCRCSCMSMKMWWTTTTTTTTTTTTTWTTTWKRKAGASASRGKSKCRCMSYGKKSTCKMKMT 16102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1620 AGCGCAGTCCCGCACGCTCATCTTCCACGTCAGCTCCTGCAGCGAGAGCTTGGCATGCTT 1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         :| | ::::: | | :|::| | :::: | | :: | :: | :::: | :::: | 1560 CCCCAGGGGAACTCTTGGTGTTCTTGCTGAGGAAGGGGGGTTTGTTGTTGTGGAGGAGCG 1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /standard_name="histidyl-tRNA synthetase"
//note="78%-100% protein identity GenPept:U18937"
complement(38069. .38215)
/note="GRAIL 2 excellent exon, frame 0"
                                                                                                                                                                                                                                                                                                                                                                            /rpt_family="Alu"
join(29465. .29559,29598. .29779)
//oote="95% identity dbsTs:G14522 (SHGC-11312)"
20495. .29976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 34; DB 26; Length 74371;
Pred. No. 2.93e-04;
92; Mismatches 89; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /rpt_family="Alu"
32977. .33088
/rpt_family="Malu"
complement(33670. .33785)
/rpt_family="Alu"
complement(44021. .34144)
/note="GRAIL 2 excellent exon, frame 2"
/note="GRAIL 2 excellent exon, frame 2"
//oote="GRAIL 2 excellent exon, frame 1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="GRAIL 2 excellent exon, frame 2"
complement(30682. 30733)
//pt_family="MIR"
complement(31573. 31724)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note-"GRAIL 2 excellent exon, frame 1"
complement(32159. .32232)
Moote-"GRAIL 2 excellent exon, frame 2"
32388. .32488
                                                                                                                                                                      /standard_name="A1027942"
/note="100% identity EST ov84a10.x1"
complement(30401. .30536)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  36901. 37222

Anote="100% identity EST ou55c09.x1"

Gd_xref="dbsgr:AI025011"

86901. 37164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement(38462. .38578)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                rpt_family="MLT1"
2617. .32908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Note: remainder of annotations omitted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6392. .36663
rpt_family="Alu"
/rpt_family="Alu"
28040. .28066
/note="(A)27"
                                                                                                                'rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity 14.6%;
Matches 31; Conservative
                                                                                                                                                           _unit=A
                                      repeat_region
                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Сp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
```

ö

Gaps

ö

Length 201;

01-DEC-1993

```
/translation="MPHSPVSPAESPAPQPGRPRPVVSRRLLEGGAAVLGALALSASP
LTAQAAVRRAAREITRIPLYKGK"
66 c 51 g 22 t 46 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   117 CSAGSAGSCGSCGSGASACSACSGGSCGSCGSCCSGGCTGSGGSGCSGGSGACTCSG 176
                                                                                                                                                                                                                         CCTGGGCCGTSAGSGGSGASGCSGASAGSGCSAGGGCCCCSAGSACSGCSGCSCCSCCT 116
                                                                                                                                                                                                          62 CSGTSGTSTCSCGSCGSCTSCTSGAGGGSGGSGCSGCSGTSCTSGGGGCCCTSGCSCTST 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26 TGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCCCGCGATGCCGCGCGCCCCCCGCT 85
                                                                                                                                            2 TGCCSCACTCSCCSGTSTCSCCSGCSGAGTCSCCSGCSCCSCAGCCSGGSCGSCCSCGSC 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                  synthetic construct.
synthetic construct
artificial sequence.
1 (bases 1 to 201)
Garvin,R.T. and James,E.
Production of active proteins containing cystine residues
Datent: EP 0222799-A 6 20-MAY-1987;
Cangene Corporation
                                                                                                                                                                                                                                                                                                                                                                       A10162 201 bp DNA PAT 01-DI
Synthetic DNA for preproprotease leader & prochymosin.
A10162
9489115
                                                                            Score 30; DB 21; Length 201
Pred. No. 4.16e-02;
35; Mismatches 57; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 35; Mismatches 57; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 30; DB 21;
Pred. No. 4.16e-02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    construct"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                u
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="synthetic c
/db_xref="taxon:32630"
t 51 c 66 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Search completed: Thu Dec 24 13:04:28 1998 Job time: 12050 secs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                         122 CSGCSTCSCCSCTSACGGCCCAGG 145
                                                                                                                                                                                                                                                                                            146 TCGTGCGCCCTGGGGCCCCAGG 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            177 CSGGSGASACSGGSGAGTGSGGCA 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCAGGGCTTCCCACGTGCGCAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 1.6%;
Best Local Similarity 36.1%;
Matches 52; Conservative
                                                                            Query Match 1.6%;
Best Local Similarity 36.1%;
Matches 52; Conservative
                               ø
                              16
                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                       LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                               BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            49
                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                              ORIGIN
                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                          ò
                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                   1. >201
/transl_table=11
/product="preproprotease"
/product="preproprotease"
/translation="helsybyspaespapoperpryvsrrileggaavigalaisase"
LTAQAAVRRAAADEPPEWNDFGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62 CSGTSGTSTCSCGSCGSCTSCTSGAGGGSGGSGCSGCSGTSCTSGGGGCCCTSGCSCTST 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              86 GCCGAGCCGTGCCTGCTGCCACTACCGCGAGGTGCTGCCGCTGGCCACGT 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-DEC-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-DEC-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      unclassified.

1 (bases 1 to 201)
Garvin,R.T. and James,E.
Production of active proteins containing cystine residues
Patent: EP 0222279-A 5 20-MAY-1987;
Cangene Corporation
                                                                                                                                                                                                      Streptomyces griseus
Eubacteria: Firmicutes; Actinomycetes; Streptomycetes;
Extraptomycetaceae: Streptomyces.
1 (bass 1 to 201)
Garvin, R.T. and James, E.
Production of active proteins containing cystine residues
Patent: EP 0222279-A 2 20-MAY-1987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product-"preproprotease leader & prochymosin"
/db_xref-"PID:g490656"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            201 bp DNA PAT 01-L for preproprotease leader & prochymosin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 201;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 30; DB 21; Length 201;
Pred. No. 4.16e-02;
35; Mismatches 57; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     46 others
                                                                                S.griseus gene for preproprotease (partial). A10158
                                                                                                                                                                                                                                                                                                                                                                  /organism="Streptomyces griseus"/db_xref="taxon:1911"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Artificial sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   22 t
               Db 16103 CYYGMYSWCSYKMKYSRYCCGCCYSSSYCKSC 16134
                                 1500 CCAGAGGCCTGGGGGCACCAGCCGGCGCAGGC 1469
                                                                                                                                                                                                                                                                                                                 Cangene Corporation
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   54 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                146 TCGTGCGCCCTGGGGCCCCAGG 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             122 CSGCSTCSCCSCTSACGGCCCAGG 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
                                                                                                                                                                                           Streptomyces griseus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Match 1.6%;
Local Similarity 36.1%;
Les 52; Conservative
                                                                                                                                                                                                                                                                                                                                                      .201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A10161
Synthetic DNA f
A10161
g490655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      unidentified.
unidentified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14
                                                                                          13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCUS
DEFINITION
                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                       TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
```

ö

Gaps

ö

Length 201;

46 others

HIS PAGE BLANK (USPTO)

****	(TM)	****
*****		*****
****	'' 	*****
在水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水水		*************************************
****		*****
****		******
*****		*****
****		*****
*****		*****
* * *		* * *

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

 $\rm n.a.$  -  $\rm n.a.$  database search, using Smith-Waterman algorithm with gap extension penalties as well as gap opening penalties MPsrch_nna

Thu Dec 24 13:04:47 1998; MasPar time 5213.74 Seconds 659.468 Million cell updates/sec Run on:

Tabular output not generated.

>US-08-951-733-13 (1-1920) from US08951733.seg (1 of 2) 1920

1 CACGCGTCCGGGCAGCGCTG.......CCAGGCCCGCCCTGCTGACG 1920 GTGCGCAGGCCGGCGGGACGACTGC Title:
Description:
Perfect Score:
N.A. Sequence:
Comp:

TABLE default Gap open 30; Gap extend 1 Scoring table:

Dbase 0; Query 0 Nmatch STD

2275026 seqs, 895388244 bases x 2 Searched:

Minimum Match 0% Listing first 45 summaries Post-processing:

embl-est55 Database: Database:

1:em_est1 2:em_gss1 3:em_gss2 4:em_gss3 genbank-est107 5:gb_est1 6:gb_est10 7:gb_est11 8:gb_est12 9:gb_est13 10:gb_est14 11:gb_est15 12:gb_est16 13:gb_est17 14:gb_est18 15:gb_est19 16:gb_est2 17:gb_est20 18:gb_est21 19:gb_est3 20:gb_est4 21:gb_est5 22:gb_est6 23:gb_est7 24:gb_est8 25:gb_est9 26:gb_gss1 27:gb_est6 28:gb_gss3 29:gb_gss4

Mean 11.357; Variance 2.736; scale 4.151 Statistics: Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Pred. No.	00+000	1.27e-46	7.79e-41	9.33e-34	6.93e-27	2.10e-10	5.22e-07	5.22e-07	6.33e-06	7.23e-05	6.33e-06	7.23e-05
Description	OU DADU TON LA COMPANY	97SN1787 Rice Immature	97SN1787 Rice Immature	97SN1784 Rice Immature		Homo sapiens ntcon6 co	Homo sapiens clone ntc	Homo sapiens clone ntc	CIT-HSP-2288C3.TF CIT-	yp24c08.rl Homo sapien	Homo sapiens ntconf co	Homo sapiens ntcon2 co
a	AA281296	AA754459	AA754459	AA754458	AA754458	AF034177	AF038250	AF038250	AQ008007	H44707	AF034177	AF034173
DB	ή α	12	12	12	12	11	12	12	27	16	11	11
% Query Match Length DB	389	252	252	247	247	099	1287	1287	317	400	099	2275
% Query Match	11.8	3.0	2.8	5.6	2.3	1.6	1.5	1.5	1.4	1.4	1.4	1.4
Score	227	28	24	49	44	31	28	28	27	56	27	56
Result No.	-	1 73	m	4	ß	9	7	æ	6	10	11	12
ž	•	O			U			O			O	O

7.3	73e- 73e- 73e-	.73e- .73e- .73e- .73e-	.73e- .73e- .73e-	.73e- .73e- .73e- .73e- .73e-	
EST21735 EST81369 vw68h11.	5558 Normalized 393 T. cruzi ep 5295 Normalized	Norma Norma Aorta 1 Homo	-R-Al-dx-a-11-0-UIR-Al-ee-d-07-0-UI. 86a03.rl Homo sapie	R-CU-nn-b-08-0-01 R-C2-nd-e-12-0-U1 13C05.s1 NCI_CGAP_ 12143.5PTINE LD DF	01-K-E-Ordy-1-01.3 7B35F02 Chromosome 7 F 9407902.51 Homo sapien yb18604.51 Homo sapien yb18604.51 Homo sapien yd7b11.51 Stratagene Rice CDNA, partial seq zr67b59.r1 Soares NHH zw32h12.51 Soares NHH fa02e07.r1 Zebrafish I EST216590 Normalized r Homo sapiens ntcon2 co
AI171394 AA386387, AA855630 R72797	382	1723 1723 3035 4656 0714	AA924206 AA925372 R86860 AIO10120		162333 4 0655 173733
83 1 87 1	2282	20 21 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	28 2 4 4 5 4 5 4 5 4 5 4 5 4 5 5 5 5 5 5 5		0.8486898000000000000000000000000000000000
25 25 25 25	22525	52 2 2 2 2 2 2 2 3 2 3 3 3 3 3 3 3 3 3 3	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	522222 52222 52222 52222 52222 52222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 522 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 522 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 522 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 522 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 5222 522 5222 5222 522 522 522 522 522 522 522 522 522 522 522 522 522 52 5	444444444444444444444444444444444444444
c 13 14 15	c 117 c 118 c 119	,,,,,,,	~~~~	000 000 333 33 34 54 54 54 54 54 54 54 54 54 54 54 54 54	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

## ALIGNMENTS

```
12 g
   /clone="97SN1787"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.8%;
llarity 8.7%;
Conservative 1
                                                                                                                              Query Match 3.0%;
Best Local Similarity 12.8%;
Matches 23; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Contact: Eun M.Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Oryza sativa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Matches 18; Conser
                                                                                 ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        rice.
                                                                                                                                                                                                                                                                                                                                                                                                         m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                 BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                8
                                                                                                                                                                                                                              ე
                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                         ů
AA754459 252 bp mRNA EST 20-JAN-1998 97SN1787 Rice Immature Seed Lambda ZAPII cDNA Library Oryza sativa cDNA clone 97SN1787, mRNA sequence.
AA754459 92801165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Oryza sativa"
/cultivar="Milyang23"
/cultivar="Welvascript SK(+); Site_1: EcoRI; Site_2:
XhoI; Directional cDNA library inserted into lambda ZAPII
vector at 5'end with EcoRI and 3' end with Xho I site."
/db_xref="taxon:4530"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryotae: Viridiplantae: Charophyta/Embryophyta group; Embryophyta: Tracheophyta; seed plants; Magnoliophyta: Liliopsida; Babryophyta: Tracheophyta; seed plants; Magnoliophyta: Liliopsida; Doctaes: Oryaa.

1 (bases 1 to 252)
Nahm, B.H., Kim, J.K., Cheong, J.J., Kim, S.I., Hahn, T.R, Moon, E.P., Kim, W.T., Kim, W.T., Yang, M.S., Park, R.D., Sohn, U.I., Kang, K.Y., Lee, M.C. and Eun, M.Y.
Large-scale Sequencing Analysis of ESTs from Rice Immature Seed Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email: myeun@sun20.asti.re.kr
Submitted by Baek Hie Nahm, Dept of Biological Science, Myongji
University, Yongin, Korea. 449-728 bhnahm@bioserver.myongji.ac.kr
Seg primer: Mi3 Reverse Primer.
Location/Qualifiers
                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                              1810 AGCAAGTTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGGGGGGTG 1869
                                                                                                                                                                                                                                                                                                                                                                                          1150 TATGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAGTGTCTGG 1809
                                                                                                                                                                                                                                                                                                                                                                           61 TATGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTTCTACCGGAAGAGTGTCTGG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                      121 AGCAAGTTGCAAAGCATTGGAATCAGACACTTGAAGAGGGTGCAGCTGCGGGACGTG 180
                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 227; DB 8; Length 303, Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Department of Cytogenetics
National Inst. of Agri. Sci. and Tech,
Suwon, Kyunggido, Korea
Tel: 82 331 290 0301
Fax: 82 331 290 0307
Email: myeun@sun20.asti.re.kr
                                                                                                                                                                                                                                             ch 11.8%;
1 Similarity 99.1%;
229; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Contact: Eun M.Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Oryza sativa
                                                                                                                                                                                                  Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 rice.
                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                               Best Local
                                                                                                                                                                               mRNA
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                          ö
```

```
XhoI; Directional cDNA library inserted into lambda ZAPII vector at 5'end with EcoRI and 3' end with Xho I site." "ADA xref="taxon:4530" "Clone="975N1787" "Alssue-type="Immature Seed Lambda ZAPII cDNA Library" "Atssue-type="Immature Seed" "Arsue-type="Immature Seed" "Alssue-type="Immature Seed" "Alssue-ty
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AA754459 252 bp mRNA EST 20-JAN-1998 97SN1787 Rice Immature Seed Lambda ZAPII cDNA Library Oryza sativa cDNa clone 97SN1787, mRNA sequence.
AA754459 92801165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryotae; Viridiplantae; Charophyta/Embryophyta group;
Bubryophyta; Tracheophyta; seed plants; Magnoliophyta; Liliopsida;
Poales; Poaceae; Oryza.

1 (bases 1 to 252)

Mahn, B.H., Kim, W.T., Cheong, J.J., Kim, S.I., Hahn, T.R, Moon, E.P.,
Kim, W.T., Kim, W.Y., Yang, M.S., Park, R.D., Sohn, U.I., Kang, K.Y.,
Lee, M.C. and Eun, M.Y.
/clone_lib="Rice Immature Seed Lambda ZAPII cDNA Library"
/tissue_type="Immature Seed"
/dev_stage="5 days after pollination"
/dab_bost="E. coli Solr"
12 21 c 35 t 179 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Department of Cytogenetics
National Inst. of Agri. Sci. and Tech, RDA
Tel: 82 331 290 0301
Fax: 82 331 290 0307
Email: myeun@sun20.asti.re.kr
Email: myeun@sun20.asti.re.kr
Email: myeun@sun20.asti.re.kr
University, Yongin, Rorea. 449-728 bhnahm@bioserver.myongji.ac.kr
Seq primer: M13 Reverse Primer.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1. 252
/organism="Oryza sativa"
/cultivar="Milyang23"
/note="Vector: pBluescript SK(+); Site_1: EcoRI; Site_2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Large-scale Sequencing Analysis of ESTs from Rice Immature Seed Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     84 NIKVDVGNHTRCSRWRBVTRMAHYHDYTNCBBYNNNDYHWWHBBMYBBTGCMTCTMWCWB 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     833 CAGGACCCTGCCCAACGGCGTCCGCTCGGCTCAGGGGCACGCCTGGGCCTC 774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24 BCHGNBVWVCVASHGNYMSVHNCTBRGTHCDCKNVNWSTMTWGTVNWBNVSGDWHYWBVB 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       893 GCAGGTGACACCACACAGAAACCACGGTCACTCGGTCCACGCGTCCTGCCCGGGTGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  144 HYNTKCTASGWHTSTNYDVKSSTNTWGVTBSYDKSMHGYWCSBBVKYHTKVSTTRATRSY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 252;
                                                                                                                                                                                                                                                                                                                                                                                                                 Length 252;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 54; DB 12; Length 252
Pred. No. 7.79e-41;
105; Mismatches 85; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                69; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                 Score 58; DB 12; I Pred. No. 1.27e-46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             35 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                88; Mismatches
```

```
MSRRS 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCGAG 598
                                                                                                                                                                                                                                                                                                     rice.
                                                                                                                                                                                Ŋ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
COMMENT
242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                602
                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               214
                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                             8
                                                              ò
                                                                                             ద
                                                                                                                                ò
                                                                                                                                                                                                                                                                                     AA754458 247 bp mRNA EST 20-JAN-1998
SySNIYB4 Rice Immature Seed Lambda ZAPII cDNA Library Oryza sativa
CDNA Clone 97SNI784, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1. .247, Coganism="Oryza sativa" / Coganism="Oryza sativa" / Cultivam="Milyang23" / Cultivam="Wilyang23" / Cultivam="Vector: pBluescript SK(+); Site_1: EcoRI; Site_2: Vector at 5'end with EcoRI and 3' end with Xho I site." / Ab_xref="taxon:4530"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryotae: Viridiplantae; Charophyta/Embryophyta group; Embryophyta: Tracheophyta; seed plants; Magnoliophyta; Liliopsida; Poacles: Oryae.

1 (bases 1 to 247)
Nahm, B.H., Kim, J.K., Cheong, J.J., Kim, S.I., Hahn, T.R, Moon, E.P., Nahm, B.H., Kim, W.Y., Yang, M.S., Park, R.D., Sohn, U.I., Kang, K.Y., Lee, M.C. and Eun, M.Y.
Lee, M.C. and Eun, M.Y.
Large-scale Sequencing Analysis of ESTs from Rice Immature Seed Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Department of Cytogenetics
National Inst. of Agri. Sci. and Tech, RDA
Suwon, Kyungqido, Korea
Suwon, Kyungqido, Korea
Tel: 82 331 290 0301
Fax: 82 331 290 0301
Email: myeun@sun20.asti.re.kr
Submitted by Back Hie Nahm, Dept of Biological Science, Myongji
University, Yongin, Korea. 449-728 bhnahm@bioserver.myongji.ac.kr
Seq primer: Mi3 Reverse Primer.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                              80 WBVBNTKVDVGNHTRCSRWRBVTRMAHYHDYTNCBBYNNNDYHMWHBBMYBBTGCMTCTM 139
                                                                                                                                              140 WCWBHYNTKCTASGWHTSTNYDVKSSTNTWGVTBSYDKSMHGYWCSBBVKYHTKVSTTRA 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               88 INTGGTGVGKTTVNVHSGWNNRCSNSVVYVWBTAYCDYBHYBDRANHVDDTRCTNDRGYC 147
                                GIGIGGIGICACCIGCCAGACCGCCGAAGAAGCCACCICITIGGAGGGGGGGGCGCTCICG 937
                                                                                                                                                                   TTSYBCHGNBVWVCVASHGNYMSVHNCTBRGTHCDCKNVNWSTMTWGTVNWBNVSGDWHY 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28 IBBWCCVRRVGTITNNGKHNGRITTWNDCSDNAHCRYIVBWYYARSKYGYGIBYYSWNVD 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 247;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 49; DB 12; Le
Pred. No. 9.33e-34;
93; Mismatches 88;
                                                                                                                                                                                                                                 998 GGGGGCACCACGTCCTGGGACACGCC 1025
                                                                                                                                                                                                              200 TRSYTCVRKYCVMWMTKKVVKKYHVVBB 227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 2.6%;
Best Local Similarity 13.0%;
Matches 27; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Eun M.Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ::
                                                                                                                                                                                                                                                                                                                                                                                                                                     Oryza sativa
                                                                                                                                                                                                                                                                                                                                                                                 92801164
                                                                                                                                                                                                                                                                                                                                                                                                                     rice.
                                                                                                                                                                                                                                                                                                   4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
               20
                                                                                                             878
                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
               셤
                                                                            ద
                                                                                                                                              g
                                                                                                                                                                             ö
                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                             ò
                                             à
```

```
97SN1784 Rice Immature Seed Lambda ZAPII CDNA Library Oryza sativa cDNA clone 97SN1784, mRNA sequence.
AA754458
92801164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1. .247

/organism="Oryza sativa"
/organism="Oryza sativa"
/organism="Oryza sativa"
/organism="Milyang23"
/note="Vector: PBluescript SK(+); Site_1: EcoRI; Site_2:
XhoI; Directional cDNA library inserted into lambda ZAPII
/orcor at 5 end with EcoRI and 3' end with Xho I site."
/db_xref="taxon:530"
/clone="97SN1784"
/clone="97SN1784"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryotae; Viridiplantae; Charophyta/Embryophyta group;
Enbryophyta; Tracheophyta; seed plants; Magnollophyta; Liliopsida;
Poales; Poaceae; Oryza.
1 (bases 1 to 247)
Mahm, B.H., Kim, N.E., Cheong, J.J., Kim, S.I., Hahn, T.R, Moon, E.P.,
Kim, W.T., Kim, W.Y., Yang, M.S., Park, R.D., Sohn, U.I., Kang, K.Y.,
Lee, M.C. and Eun, M.Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Department of Cytogenetics
National Inst. of Agri. Sci. and Tech, RDA
Suwon, Kyungqido, Korea
Tel: 82 331 290 0301
Fax: 82 331 290 0301
Email: myeun@sun20.asti.re.kr
Submitted by Back Hie Nahm, Dept of Biological Science, Myongji
University, Yongin, Korea. 449-728 bhnahm@bioserver.myongji.ac.kr
Seq primer: Mi3 Reverse Primer.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Large-scale Sequencing Analysis of ESTs from Rice Immature Seed Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       154 NGTSATKRVTGYDKTDSDCGGGCWRKVTYGSSBYBRCGVNVMVRTTSMWTDKSTKMBSMD 213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   603
                                                     207
                                                                                                   361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GVGKTTVNVHSGWNNRCSNSVVYVWBTAYCDYBHYBDRANHVDDTRCTNDRGYCNYTASD 153
148 NYTASDNGTSATKRVTGYDKTDSDCGGCWRKVTYGSSBYBRCGVNVMVRTTSMWTDKST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 44; DB 12; Length 247;
Pred. No. 6.93e-27;
65; Mismatches 45; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          169 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /tissue_type="Immature Seed"
/dev_stage="5 days after pollination"
/lab_host="E. coli SOLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          34 t
                                                                                                                                                    208 KMBSMDMSRRSRVHYGRWMBNKKRGMSR 235
                                                                                                                                                                                       362 TCGGCTTCGCGCTGCTGGACGGGGCCCG 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 2.3%;
Best Local Similarity 12.0%;
Matches 15; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Eun M.Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Oryza sativa
```

```
ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         σ
                                                                                                                                                                   LOCUS
DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                 NID
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                     RESULT
                                                                                                                                                                                                                                             SOURCE
                  ద
                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cb
                                                ò
                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens
Eukaryotae; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Primates; Catarrhin; Hominidae; Homo.
Primates; Catarrhin; Hominidae; Homo.
Tripodiss. I to 1287)
Tripodis. N. and Ragoussis, J.
Direct Submission
Submitted (12-DEC-1997) Division of Medical and Molecular Genetics, Guy's Hospital, 7th floor, Guy's Tower, London SEI 9RT, UK
                                                                                                                                                                                                                                          2 (bases I to 660)
Tripodis,N. and Ragoussis,J.
Direct Submission
Submitted (13-NOV-1997) Division of Medical and Molecular Genetics,
Guy's Hospital, 7th floor, Guy's Tower, London SEl 9RT, UK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                 o mRNA EST 22-DEC-1997 contig mRNA, partial sequence, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AF038250 1287 bp mRNA EST 29-JAN-1998
Homo sapiens clone ntcon9 mRNA, partial sequence, mRNA sequence.
AF038250
92815880
                                                                                                                                                                                                                                                                                                                                                                                                     /mar-criticans contig"
/tissue_type="fetal brain; fetal liver; adult muscle"
/tote="similar to CutA"
/note="similar to T13 g 109 t 55 others
                                                                                                      Homo sapiens
Eukaryotae; Metazoa; Chordata; Vertebrata; Mammalla; Eutheria;
Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                 Tripodis, v. and Ragoussis, v. Generation of a transcription map in the region immediately centromeric to human MHC across the 6p21.2-6p21.3 chromosomal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 1287;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 31; DB 11; Length 660;
Pred. No. 2.10e-10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 28; DB 12; Length 128
Pred. No. 5.22e-07;
29; Mismatches 27; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            384 WSSRCCYRSYGMYHYYYCYYKKCDMSCTTSKSRWYKSKRSWCDCD 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              347 AGAACGTGCTGGCTTCGCGTTCGCTGCTGGACGGGCCCGCG 391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /"Clone"ntcon9"
/dev_stage="fetal"
/tissue_type="brain; liver"
/note="similar of HSRP20"
219 c 293 g 361 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                31; Mismatches
                                                                                                                                                                                                                                                                                                                                             /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="6"
         Homo sapiens ntcon6 cor. AF034177 g2707739 Fcm
                                                                                                                                                                                                                                                                                                                                                                                            /map="6p21.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Match 1.6%;
Local Similarity 15.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 1.5%;
Best Local Similarity 29.1%;
*.Matches 23; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                  1. .660
                                                                                                                                                                                                                            Unpublished
                                                                                                                                                                                                                 boundary
                                                                                                                                                                                                                                                                                                                                                                                                                                                     162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             . uemur
                                                                                           human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7
                               DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
ORIGIN
                                                                                        SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                   REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                         TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                              JOURNAL
                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
```

```
Eukaryotze: Metazoa; Chordata; Vertebrata; Mammalla; Eutheria; Primates; Catarrhin; Hominidae; Homo.

1 (bases 1 to 1287)
1 (bases 1 to 1287)
Direct Submission
Submitted (12-DEC-1997) Division of Medical and Molecular Genetics, Guy's Hospital, 7th floor, Guy's Tower, London SEI 9RT, UK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

( bases 1 to 317)
Adams,M.D., Rounsley,S.D., Field,C.E., Bass,S., Linher,K., Golden,K., Berry,K., Granger,D., Suh,E., Wible,C., Shizuya,H., Simon,M. and Venter,J.C.

Use of a random BAC End Sequence Database for Sequence-Ready Map
                                                                                                                                                                                                                 AF038250 1287 bp mRNA EST 29-JAN-1998
Homo sapiens clone ntcon9 mRNA, partial sequence, mRNA sequence.
AF038250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               401 DCBTGGGDTBSHBVCMCBCBANADGATBATCGKVGGVBGASTCMTHYNCCDCKTCGSAGV 460
                      407 GDTBSHBVCMCBCBANADGATBATCGKVGGVBGASTCMTHYNCCDCKTCGSAGVTVNHHD 466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GLT-HSP-2288C3.TF CIT-HSP Homo sapiens genomic clone 2288C3, AQ008007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 1287;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 28; DB 12; Length 1287
Pred. No. 5.22e-07;
29; Mismatches 19; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      65 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      361 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /dev_stage="fetal"
/tissue_type="brain; liver"
/note="similar to HSRP20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Contact: Mark Adams
Department of Eukaryotic Genomics
The Institute for Genomic Research
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 293 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /chromosome="6"
/map="6p21.3"
/clone="ntcon9"
                                                                                                               |: ::: : | | :||||
287 TGTCCTGCCTGAAGGAGCT 305
                                                                                    461 TVNHHDWSMAGGAARAGCT 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 1.5%;
Best Local Similarity 23.8%;
Matches 15; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      219 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Building
Unpublished (1997)
                                                                                                                                                                                                                                                                                                                                                          Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      349 a
                                                                                                                                                                                                                                                                                     92815880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1366 AGC 1364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                human.
                                                                                                                                                                                                                                                                                                                                   human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            467 WSM 469
```

```
1.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 1.4%;
Best Local Similarity 23.6%;
Matches 13; Conservative
                                                                                                                                                39; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               161 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1. .660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                         Best Local Similarity
Matches 39; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished
                                                           ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 162 a
                                                                                                                                                                                                                                                                                                                                          92707739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           boundary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   boundary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           human.
                                                                                                                                                                                                                                                                                                                                                                                 human.
                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 12
                                                                                                                                                                                                                                                                        Η
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
                                                         BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                                                                                               SOURCE
                                                                                                                                                                                                                                                                                          LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                 음
                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9712 Medical Center Dr., Rockville, MD 20850, USA
Tel: 301 838 0200
Exa: 301 838 0200
Email: and dawa@tigr.org
Clones are available from Research Genetics (info@resgen.com). BAC end search page:
ttp://www.tigr.org/tdb/humgen/bac_end_search/bac_end_search.html
Seg primer: MJ-21;
Class: BAC ends.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
Eukaryotae; Metazoa; Eumetazoa; Bilateria; Coelomata;
Eukaryotae; Metazoa; Eumetazoa; Bilateria; Coelomata; Osteichthyes;
Deuterostoomia; Chordata; Vertebrata; Gnathostomata; Osteichthyes;
Sarcopterygii; Choanata; Tetrapoda; Amniota; Mammalia; Theria;
Eutheria; Archonta; Primates; Catarrhini; Hominidae; Homo.

[ bases 1 to 400)
Hillier, L., Clark, N., Dubuque, T., Elliston, K., Hawkins, M.,
Holman, M., Hultman, M., Rucaba, T., Le, M., Lennon, G., Marra, M.,
Parsons, J., Rifkin, L., Rohlfing, T., Soares, M., Tan, F.,
Trevaskis, E., Waterston, R., Williamson, A., Wohldmann, P. and
                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Email: est@watson.wustl.edu
High quality sequence stops: 363
Source: IMAGE Consortium, LLNL
This clone is available royalty-free through LLNL; contact the IMAGE Consortium (life@image.llnl.gov) for further information.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           444707 400 bp mRNA EST 31-JUL-1995 yp24c08.rl Homo sapiens cDNA clone 188366 5'. H44707 9920759 EST. human clone=188366 library=Soares breast 3NbHBst vector=pT773b
                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                       Location/Qualifiers
1. .317
/organism="Homo sapiens"
/note="Wector: pBelobAC11; Site_1: HindIII; Site_2: HindIII"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Contact: Wilson RK
WashU-Merck EST Project
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                              Length 317;
                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                Pred. No. 6.33e-06;
0; Mismatches 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       275 CCTTCCGCCAGGTGTCCTGCCTGAAGGAGCTGGTGGC 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    231 CCTTTCCCCAGGTGTCCTGTCTGAAGGAGATGGGGGC 267
                                                                                                                                                                                                                                                                                                                                                                                              Score 27; DB 27;
                                                                                                                                                                                                                                                                                                                                            ų
                                                                                                                                                                                                                                                                                                                                            75
                                                                                                                                                                                                                                                     /db_xref-"taxon:9606"
                                                                                                                                                                                                                                                                      /clone="2288C3"
/clone_lib="CIT-HSP"
                                                                                                                                                                                                                                                                                                                          /cell_type="Sperm"
92 c 91 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The WashU-Merck EST Project Unpublished (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 and M.Fatima Bonaldo.
                                                                                                                                                                                                                                                                                                       /sex="Male"
                                                                                                                                                                                                                                                                                                                                                                                              Query Match 1.4%;
Best Local Similarity 86.5%;
Matches 32; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LOCUS
DEFINITION
ACCESSION
                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                            BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                             ORIGIN
```

셤 ö

```
Direct Submission State of Medical and Molecular Genetics, Submitted (13-NOV-1997) Division of Medical and Molecular Genetics, Guy's Hospital, 7th floor, Guy's Tower, London SE1 9RT, UK Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AF034173 2275 bp mRNA EST 22-DEC-1997
Homo sapiens ntcon2 contig mRNA, partial sequence, mRNA sequence.
AF034173
92707735
                                                                                                                                                                                                                                                                                                                                  AF034177 660 bp mRNA EST 22-DEC-1997
Homo sapiens ntcon6 contig mRNA, partial sequence, mRNA sequence.
AF034177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryotae; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Primates; Catarhini; Hominidae; Homo. (assa 1 to 2275)
Tripodis, N. and Ragoussis, J. Generation of a transcription map in the region immediately centromeric to human MHC across the 6p21.2-6p21.3 chromosomal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
Eukaryotae; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              brain; fetal liver; adult muscle"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 (bases 1 to 660)
Tripodis,N. and Ragoussis,J.
Generation of a transcription map in the region immediately
centromeric to human MHC across the 6p21.2-6p21.3 chromosomal
                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         380 CACSWSSRCCYRSYGMYHYYYCYYKKCDMSCTTSKSRWYKSKRSWCDCDMCAAAG 434
                                                                                                                                                                                                                                     128 TGCTGCCGCTGGCCACGTTCGTGCGGCGCCTGGGGCCCCAGGGCTGGCGCGTG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                              ö
                                                                                                                                                                                                            80
                                                                                                                                                                                                            28 INCIGCCCCGGGCCACGITIGIGAGCAGCGIGAGACCCGAGAGCICICGGCIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 660;
                                                                                                                     Length 400;
                                              10 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               55 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 27; DB 11; Length 660 Pred. No. 6.33e-06; 28; Mismatches 14; Indels
                                                                                                                Score 26; DB 16; Length 400
Pred. No. 7.23e-05;
0; Mismatches 14; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               109
                                              79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="6"
/map="6p21.3"
/organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone="ntcon6 contig"
/tissue_type="fetal bra
/note="similar to CutA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unpublished
2 (bases 1 to 660)
Tripodis, N. and Ragoussis, J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        173 g
                                           113 g
                     /clone="188366'
. 123 c 11
```

US-08-951-733-13-02.rst

```
96026280
                                                                                                                                                                                                                                                                                                                                                                                              human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                     14
                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mRNA
BASE COUNT
                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AI171394 143 bp mRNA EST 07-0CT-1998 EST217350 Normalized rat muscle, Bento Soares Rattus sp. cDNA clone RMUBK19 3' end, mRNA sequence.
2 (bases 1 to 2275)
Tripodis,N. and Ragoussis,J.
Direct Submission
Submitted (13-NOV-1997) Division of Medical and Molecular Genetics,
Guy's Hospital, 7th floor, Guy's Tower, London SE1 9RT, UK
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Rattus sp.

Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;

Eodenfia; Sciurognathi; Muridae; Murinae; Rattus.

1 (bases 1 to 143)

Lee, N. H., Glodek, A., Chandra, I., Mason, T. M., Quackenbush, J.,

Kerlavage, A. R. and Adams, M. D.

Rat Genome Project: Generation of a Rat EST (REST) Catalog & Rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1895 CGATGCTGCTCTGCTTCCGACAGCTCCCGCAGCTGCACCTCTTCAAGTGCTGT 1836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1481 YKRWKRRKGRRKRWTGMYKRMYRAMMAMCAMMACWWYYWKMRGMKKCWKYRKYKKYTST 1540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="Orange muscle; Vector: pT7T3Pac; Site_1: EcoRI; Site_2: NotI" | Ab_xxef="taxon:10118" | Ab_xxef
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9712, Medical Center Drive, Rockville, MD 20850, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 2275;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 25; DB 18; Length 143;
Pred. No. 7.73e-04;
0; Mismatches 11; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   149 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 26; DB 11; Length 227
Pred. No. 7.23e-05;
55; Mismatches 38; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1541 YYKSWSRWYWTTYTYWYCWCCTSMKSASCAMMRWMGYMGSR 1582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Homo sapiens"
/da_xref="taxon:9606"
/chromosome="6"
/map="fp21.3"
/clone="ntcon2"
/tissue_type="liver; brain"
/dev_stage="fetus"
/note="similar to Br140"
a 619 c 470 g 599 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The Institute for Genomic Research
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Rattus sp."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tel: (301)-838-3529
Fax: (301)-838-0208
Email: nhlee@tigr.org
Seg primer: M13-21.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gene Index
Unpublished (1998)
Other_ESTs: TC52270
Contact: Lee, NH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 1.3%;
Best Local Similarity 76.6%;
Matches 36; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Rattus sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ಥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A1171394
93711434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOURCE
ORGANISM
                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
ORIGIN
                                                                    TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                   AUTHORS
      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  გ
```

```
Adams, M.D., Rerlavage, A.R., Fleischmann, R.D., Fuldner, R.A.,
Bult, C.J., Lee, N.H., Kirkness, E.F., Weinstock, K.G., Gocayne, J.D.,
White, O., Sutton, G., Blake, J.A., Brandon, R.C., Man-Wai, C.,
Clayton, R.A., Cline, T.R., Cotton, M.D., Farle-Hughes, J., Fine, L.D.,
Fitzgerald, L.M., Fitzhugh, W.M., Fritchman, J.L., Geoghagen, N.S.,
Glodek, A., Gnehm, C.L., Hanna, M.C., Hedblom, E., Hinkle, P.S.Jr.,
Kelley, J.M., Kelley, J.C., Liu, L.-I., Marnaros, S.M., Merrick, J.M.,
Moreno-Palanques, R.F., McDonald, L.A., Nayven, D.T., Pelligrino, S.M.,
Phillips, C.A., Ryder, S.E., Scott, J.L., Saudek, D.M., Shirley, R.
Small, K.V., Spriggs, T.A., Utterback, T.R., Weidman, J.F., Li, Y.,
Bednarik, D.P., Cao, L., Cepeda, M.A., Colleman, T.F., Li, Y.,
Bednarik, D.P., Feng, D.-F., Ferrie, A., Fischer, C., Hastings, G.A.,
Rozak, D.L., Kunsch, C., Hungjun, J., Li, H., Meissner, P.S., Olsen, H.,
Raymond, L., Wei, Y.F., Wing, J., Xu, C., Yu, G.L., Ruben, S.M.,
Dillion, P.J., Fannon, M.R., Rosen, C.A., Haseltine, W.A., Fields, C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Initial assessment of human gene diversity and expression patterns based upon 83 million nucleotides of cDNA sequence Nature 377 (6547 Suppl), 3-174 (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Email: arkerlav@tigr.org
For clone availability, additional sequence and expression
For clone availability, additional sequence and expression
information related to this EST, please check the TIGR Human Gene
infox (http://www.tigr.org/tdb/hgi/hgi.html)
Seq primer: M13 Reverse.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Homo sapiens"
/note="Organ: prostate; Vector: pBluescript SK-; Site_1:
ECORI; Site_2: XhoI"
/db_xref="ATCC (inhost):174439"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  32 TGGGCGGCGCTCTGCTGTGCCTGGCCGTGGCCGCCCTGGTGCGCGCGGACGACGACCCCNAGG 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                   AA386387 181 bp mRNA EST 22-APR-19 EST81369 Prostate gland I Homo sapiens cDNA 5' end similar prolyl 4-hydroxylase, beta subunit/protein disulfide isomerase/thyroid hormone-binding protein, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Contact: Kerlavage, AR
Bioinformatics
The Institute for Genomic Research
9712 medical Center Drive, Rockville, MD 20850 USA
Tel: 3018699056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 25; DB 6; Length 181; Pred. No. 7.73e-04; 0; Mismatches 18; Indels
                                  57
103 GGGAGCGCACGGCAGCGGGGAGCGCGCGCGCATCGCGGGGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ē
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 32 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /db_xref="taxon:9606"
/clone_lib="Prostate gland
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /sex="male" /dev_stage="adult, 21 yrs" <1. .>181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Other_ESTs: EST81368 THC170792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 1.3%;
Best Local Similarity 70.0%;
Matches 42; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 181)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              09
09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Fax: 3018699423
                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ó
```

ö

4 GGGAGCGCATGGGCCGGCTGCGGGCTCGCGCCGCTGCTG 50

B

```
AA855630 187 bp mRNA EST 06-MAR-1998 vw68h11.rl Stratagene mouse heart (#937316) Mus musculus cDNA clone 1260165 5' similar to TR:Q99960 Q99960 PLAKOPHILIN 2A. [1] ;, mRNA
                                                                                                                                  Eukaryota; Metazoa; Chordata; Vertebrata; Manmalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

1 (bases 1 to 187)
Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 25; DB 13; Length 187; Pred. No. 7.73e-04; 0; Mismatches 5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /tissue_type="heart"
/dev_stage="13 day embryos"
/lab.host="SOLR (kanamycin resistant)"
65 c 70 g 23 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         105 GGCTGGCGGCAGCAGCGGCGGCGACCCGGCGGC 139
                                                                                                                                                                                                                                Waterston, R.
The WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 85.7%;
Matches 30; Conservative
                                                                                                                                                                                                                                                           Unpublished (1996)
                                                                                                                        Mus musculus
                                                                                                           house mouse.
                                                   sequence.
AA855630
g2943168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29
15
              LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
ORIGIN
                                                                ACCESSION
NID
KEYWORDS
SOURCE
                                                                                                                      ORGANISM
                                                                                                                                                                                                                                             TITLE
JOURNAL
COMMENT
                                                                                                                                                             REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          සු
```

169 GGCTGGCGGCTGGTGCAGCGGGGACCCGGCGGC 203

ð

Search completed: Thu Dec 24 14:55:23 1998 Job time : 6636 secs.

THIS PAGE BLANK (USPTO)

1.31e-05
1.31e-05
1.31e-05
1.31e-05
1.31e-05
1.31e-05
1.31e-05
1.32e-04
1.23e-04
1.24e-05
1.12e-03
1.1

Generic DNA sequence
Human RANTES antisens
Human interleukin 8 a
Human IL3 receptor an
Generic DNA sequence
Generic DNA sequence
Human IL6 antisense ol
Human IL7 receptor an
Human IL7 receptor an
Human IL7 receptor an
Human IL6 antisense o
Human IL6 antisense
Signal portion of gen
Generic DNA sequence
Human IL6 receptor an
Human IL6 receptor an
Human IL6 receptor an
Human MDNCF antisense
Substance P antisense

	(ME)	<b>000 0</b>	113 114 115 116 117 118 118 118 119 119 119 119 119 119 119
**************************************	**************************************	υυ υ	
MPsrch_nna n.a n.a. with gap exte Run on: Thu Dec	- n.a. database search, using Smith-Waterman algorithm gap extension penalties as well as gap opening penalties Thu Dec 24 14:55:42 1998; MasPar time 578:35 Seconds 45: 671 Million cell undates seconds	o c	23 33 33 33 33 33 33 33 33 33 30 30 30 30
ut no.	733-13	0000	
Description: (1-1920 Perfect Score: 1920 N.A. Sequence: 1 Comp:	<pre>(1-1920) from US08951733.seq (1 of 2) 1920 1 CACGCGTCCGGGCAGCGCTGCCAGGCCCGCCCTGCTGACG 1920 GTGCGCAGGCCCGTCGCGACGGTCCGGGGGGGGGACGACGC</pre>	υ	
Scoring table: TABLE defaul Gap open 30;	TABLE default Gap open 30; Gap extend l	υ	44 44 20 20 20 20
STD :	Query 0		
Searched: 188442 seqs, Post-processing: Minimum Matcl	188442 seqs, 68026449 bases x 2 Minimum Match 0% Listing first 45 summaries	RESULT ID Q	JLT 1 Q51746 stand
Database: n-geneseq32 1:part1 2 8:part8 9 14:part14 19:part19 24:part24 29:part29 34:part34	geneseg32 1:part1 2:part2 3:part3 4:part4.5:part5 6:part6 7:part7 8:part8 9:part9 10:part10 11:part11 12:part12 13:part13 14:part8 9:part9 10:part10 11:part11 12:part12 13:part13 14:part19 20:part15 16:part16 17:part17 18:part23 24:part19 20:part25 21:part21 22:part22 23:part23 24:part29 30:part30 31:part31 32:part32 33:part33 34:part39 40:part40	ACCEPT OF THE PROPERTY OF THE	021/46; 31-MAY-1994 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucleo 01igonucle
Statistics: Mean 9.	9.368; Variance 6.325; scale 1.481	PP	Shank DD,

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

	Pred. No.	3.54e-10	3.54e-10	3.86e-09	1.32e-07	4.21e-07	1.33e-06	1.33e-06	1.33e-06	1.33e-06	4.21e-07	1.33e-06	1.31e-05
	Description	Oligonucleotide probe	Oligonucleotide probe	Base substituted E.co	Generic DNA sequence	Generic DNA sequence	NA	Generic DNA sequence	Generic DNA sequence	Generic DNA sequence	Human endothelin-1 an	Base substituted E.co	Generic DNA sequence
	£ £	051746	051746	N81164	070466	070469	070468	070467	070468	070465	T76405	N81164	070467
	80	6	σ	Н	12	12	12	12	12	12	32	Н	12
	Query Match Length DB	91	91	204	114	114	114	114	114	114	178	204	114
æ	Query	2.3	2.3	2.2	2.1	2.0	2.0	5.0	2.0	2.0	5.0	5.0	1.9
	Score	45	45	43	40	39	38	38	38	38	39	38	36
	ult No.	1	7	m	4	S	9	7	œ	σ	10	11	13
	Result No.		υ					U	ပ	υ		U	

RESULT

		ئ 0 ;
	for MK14 but	Gaps 60 444
ALIGNMENTS	PP.  **Mycobacteria; disease diagnosis;  **O.  **O.  **Specific for Mycobacteria - used nof Mycobacteria nucleic acid in glish.  **A consists of nucleotides 5-95 of oall spp. of mycobacteria tested, -mycobacterial spp. The probe may reen for mycobacterial infection.  **Theorem of the probe of of the probacterial infection.	2.3%; Score 45; DB 9; Length 91; 7.3%; Pred. No. 3.54e-10; vative 46; Mismatches 5; Indels 0; nvshhhsvhhvvhvvhvvhhvvhvyhvyvsv 6;::::::::::::::::::::::::::::::::::::
	O51746 standard; CDNA; 91 BP Q51746, 31-MAY-1994 (first entry) Oligonucleotide probe MK14-A Oligonucleotide; DNA probe; 8s. Synthetic. BP-571911-A. O1-DEC-1993; 108325. 24-MAY-1992; US-889551. A-MAY-1993; U	Ouery Match Best Local Similarity Matches 4: Conserv 6 cggcgssvhsyyvvl
	RESULT OSSIGN OS	Query M Best Lo Matches Db 6

```
Best Local Similarity 20.9%;
Matches 31; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                   070466;
                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                              ö
                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Introducing random point mutations into nucleic acods -

"Introducing random point mutations into nucleic acods -

by prepn of single stranded template, annealing a primer, elongation,

misincorporation, completion of molecules and screening.

Bisclosure; p; English.

Random point mutations were introduced into the alpha fragment of

E.coll beta galactosidase. The wild type sequence was obtained as a

Single stranded template and an oligonucleotide was hybridised to

it to generate a popn of DNA molecules which terminate at all

possible nucleotide positions within a specified region. The

variable 3' ends generated in this way are used as primers for

reverse transcriptase. Nucleotides are misincorporated by the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              transcriptase and the molecules are completed to forms that can be amplified and then expressed in a suitable host-vector system. The sequence covers all 176 difft base substitutions, most of which see also P80575.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4 tccggcgssvhsyyvvhvvshhhsvhhvvhvvhhvvhvvhhvhhvhyhvyvsvct 62
                                                                                                                                                                                                                                                                                                                                                                                                   MK14
but
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       08-NoV-1990 (first entry) assess by a strangment. Base substituted E.coli beta-galactosidase alpha-fragment. E.coli beta galactosidase alpha-fragment; base substitutions; ss. Escherichia coli.
                                                                                                                                                                                                                                                                                                                 used for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               108 Others;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           03-APR-1987; US-034819.
(SUSO) SUOMEN SOKERL OX.
Lehtovaara P, Knowles J, Koivula A, Bamford J, Reinikainen T;
WPI: 88-279927/40.
                                                                                                                                                                                                                                                                                                                                                                        Claim 3; Page 14; 23pp; English.
Oligonucleotide probe MK14-A consists of nucleotides 5-95 of (Q51735). It hybridized to all spp. of mycobacteria tested, cross reacted to a few non-mycobacterial spp. The probe may be useful as an initial screen for mycobacterial infection. See also Q51735-45 and Q51747-59.
Sequence 91 BP; 5 A; 17 C; 15 G; 4 T;
                                    31-MAY-1994 (first entry)
Oligonucleotide probe MK14-A
Oligonucleotide; DNA probe; mycobacteria; disease diagnosis;
                                                                                                                                                                                                                                                                                                            New oligo:nucleotide probes specific for Mycobacteria – use detection and amplification of Mycobacteria nucleic acid in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 9; Length 91;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /function=multiple cloning site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 45; DB 9; Lv
Pred. No. 3.54e-10;
45; Mismatches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               47 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LT 3
N81164 standard; DNA; 204 BP.
N81164;
  BP.
                                                                                                                                                                                              24-MAY-1993; 108325.
26-MAY-1992; US-889651.
(BECT ) BECTON DICKINSON CO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity 11.9%;
Matches 7: Conserved
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19..69
/*tag= a
Q51746 standard; cDNA; 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      187..204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /*tag=
                                                                                                                                                                                                                                                                 Shank DD, Spears PA;
WPI; 93-378844/48.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        30-MAR-1988; 105163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          204 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                       EP-571911-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EP-285123-A
                                                                                                                                                                            01-DEC-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      primer_bind
                                                                                                                                  Synthetic
                                                                                                                                                                                                                                                                                                                                                          samples
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
ID N8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ű
NAME OF THE PART O
```

Score 43; DB 1; Length 204;

2.28;

Query Match

ţ

```
Tidentifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins PT comprising a binding domain and an effector domain bisclosure; Page 35; 255pp; English.

Disclosure; Page 35; 255pp; English.

Comprising a binding domain and an effector domain bisclosure; Page 35; 255pp; English.

Cofficial a generic DNA Sequence used to generate random TSAR (Totally Synthetic Affinity Reagents) peptides. This generic formula can also be represented as follows: X(NNB)1(TGC)(NNB)10(TGC)2(NNB)4Z(NNB)8(TGC)(NNB) CCC Synthetic Affinity Reagents. Other generic sequences are shown in R65151-54. TSARS are concatenated heterofunctional proteins or peptides. Comprising at least two functional regions - a binding domain with affinity for a ligand and a second effector peptide portion that is chemically or biologically active. They may further comprise a linker peptide between the 2 domains. The oligonucleotides are also contained so that the expressed peptide contains 2 or 4 cysteine residues confer some degree of conformational rigidity to the peptides. They can also replace to the functional rigidity to the peptides. The TSARS or comprising a TSAR binding domain can be used in vivo to deliver a chemically or biologically active moiety, eg. metal contains a liso replace the function of macromolecules, eg. monoclonal or polyclonal antibodies and therefore circumvent the need for complex methods of hybridoma formation or in vivo antibody production.

Complex methods of hybridoma formation or in vivo antibody production.

Complex methods of hybridoma formation or in vivo antibody production.

Complex methods of hybridoma formation or in vivo antibody production.
                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                            45 bcyrraggnyccccggggywccgagcycgaayycdchvgccgymrttthhyrrmrbnvyrd 104
                                                                                                                                                                                      105 ynrsdaaawyccyrrsvkydccynachhddhyvybbbvynvhnhnnencccbnnhvchnv 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Generic DNA sequence to generate a random TSAR-9 petide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                          /note= "this sequence represents 'Z'; Z can be
                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 12; Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 40; DB 12; Length 114
Pred. No. 1.32e-07;
32; Mismatches 70; Indels
Pred. No. 3.86e-09;
57; Mismatches 60; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sequence of 6, 9 or 12 nucleotides (see comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       direct and rapid detection in a screening process Sequence 114 BP; 0 A; 4 C; 4 G; 4 T;
                                                                                                                                                                                                                                                                                                                                                                                                                   165 hbnnhrnwayvrhdarrddvhccvchcc 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
55..60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-FEB-1993; US-013416.
30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
(UNC-) UNIV NORTH CAROLINA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2.1%;
llarity 8.9%;
Conservative.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              05-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q70466 standard; DNA; 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Fowlkes DM, Kay BK;
WPI; 94-279739/34.
P-PSDB; R65152.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             U00977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity
Matches 10; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18-AUG-1994.
01-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO9418318-A
```

m

US-08-951-733-13-02.rng

```
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SAFE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI: 94-78738/34.

PT Identifying proteins or peptide(s) which bind a ligand - by
Identifying proteins or peptide(s) which bind a ligand - by
Identifying proteins or pector library expressing fusion proteins

PT Screening a binding domain and an effector domain

Disclosure: Page 35: 255pp; English.

CQ 70469 is a generic DNA sequence used to generate random TSAR peptide

CT (TGC)(NNB) 52(NNB) 10-6000 (NNB) 10-6000 (NNB) 10-6000 (NNB) 10-6000 (NNB) 10-600 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             btgcnnbnnbnnbnnbnnbnnbnnbnnbnnbtgctgcnnbnnbnnbnnbnnnnnn 62
                                                                                                                                                                                                       Generic DNA sequence to generate a random TSAR peptide library.
TSAR; totally synthetic affinity reagent; synthetic; binding domain;
effector domain; concateneated heterofunctional protein; linker;
direct; rapld; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 tgcnnbnnbnnbnnbnnbnnbnnbnnbnnbtgcnnbnnbnnbnnbnnbnnbnnbnnbnnbnnn 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                               GTGCGGCGCCTGGGCGGCTGGCGGCTGCTGCAGCGCGGGGACCCGGCGGCTTTTC
                                                                                                                                                                                                                                                                                                                                          ø
                                                                                                                                                                                                                                                                                                                                       sequence represents 'Z'; Z can be 5,9 or 12 nucleotides (see
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                              banbanbanbanbanbanbanbtgcanbanbanbanbanbanbanbanb 114
                                                                                              61 anbanbtgcanbanbanbanbanbanbanbanbanbanbanbanbanb 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            209 GCGCGCTGGTGCCCAGTGCCTGGTGCGTGCCCTGGGACGCACGGCCGC 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                32; Mismatches 71; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No. 4.21e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 39; DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4 G;
                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4
ب
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               detection in a screening process. Sequence 114 BP; 0 A; 4 C
                                                                                                                                                                                                                                                                                                                                                    sequence of 6,9 comments)"
                                                                                                                                                                                                                                                                                                                    /*tag= a
/note= "this
                                                                                                                                            .r 5
Q70469 standard; DNA; 114 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     30-DEC. 31-JAN-1994; US-189351.
(UYNC-) UNIV NORTH CAROLINA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7.28;
                                                                                                                                                                                        07-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                 US-013416.
US-176500.
US-189331.
                                                                                                                                                                                                                                                                                                       55..60
                                                                                                                                                                                                                                                                                                                                                                                                                    U00977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity
Matches 8; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                 01-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                 01-FEB-1993;
30-DEC-1993;
                                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                    18-AUG-1994
                                                                                                                                                                                                                                                                        Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                        070469;
                                                              63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             149
                               148
                                                                                              208
                                                                                                                                         셤
                                                             셤
                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                윤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
```

```
151 CGCGCCTGGGGCCCCCAGGGCTGGCGGCTGCAGCGCGGGGGACCCGGCGCGCTTTCCGC 210
                                                                 Generic DNA sequence to generate a random TSAR petide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; reffector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3 banbanbanbanbanbanbanbanbanbanbanbtgcanbanbanbanbanbanbannan 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                         can be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Generic DNA sequence to generate a random TSAR petide library.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             63 bnabnabnabnabnabanbtgcanabnabnabnabnabnabnabnabnab 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         211 GCGCTGGTGGCCCAGTGCCTGGTGCGTGCCCTGGGACGCCACGCCCCCC 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     73; Indels
                                                                                                                                                                           /uote- "this sequence represents '2'; 2 sequence of 6, 9 or 12 nucleotides (see comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pred. No. 1.33e-06;
34; Mismatches 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 12:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 38;
                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q70467 standard; DNA; 114 BP. Q70467; 05-APR-1995 (first entry)
                                                                                                                                                                                                                                                                           01-FEB-1993; US-013416.
30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity 4.5%;
5; Conservative
LT 6
Q70468 standard; DNA; 114
Q70468;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2.08;
                                                    (first entry)
                                                                                                                                                                     /*tag=
                                                                                                                                                                                                                                                                                                                                     Fowlkes DM, Kay BK;
WPI; 94-279739/34.
P-PSDB; R65154.
                                                                                                                                                                                                                                                             U00977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local Similarity
                                                                                                                                                                                                                                              18-AUG-1994.
01-FEB-1994;
                                                   05-APR-1995
                                                                                                                                                       misc_feature
                                                                                                                              Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
```

ö

```
m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DAG SETT THE PROPERTY OF PARTY OF PARTY
                  Terening a recombinant vector library expressing fusion proteins

Treening a recombinant vector library expressing fusion proteins

PT comprising a binding domain and an effector domain

Disclosure; Page 35; 255pp; English.

COMPAGO Is a generic DNA Sequence used to generate random TSAR (Totally

COMPAGO Is a generic DNA Sequence used to generate random TSAR (Totally

COMPAGO Is a generic DNA Sequence used to generate random TSAR (Totally

COMPAGO Is a generic DNA Sequence used to generic formula can also be

Tepresented as follows: X(NNB)16(TGC)(NNB)12(NNB)18.X

COMPAGO IS A generic DNA Sequences are shown in QTO466-68.

COTHER SPECIFIC PEPTIGES GENERATED BY THES GENERIC SEQUENCES ARE SHOWN IN

COTHER SPECIFIC PEPTIGES GENERATED BY THESE GENERIC SEQUENCES

COMPAGO IS A ligand and a second effector peptide portion that is

COMPAGO IS A ligand and a second effector peptide portion that is

COMPAGO IS A ligand and a second effector peptide portion that is

COMPAGO IS A ligand TSAR binding domain with

COMPAGO IS A ligand TSAR binding domain can be used in vivo to

COMPAGO IS A LIBRARY AND A LIBRARY BINDING AND BY USED IS A LIBRARY

COMPAGO IS A LIBRARY BINDING AND BY USED IS A LIBRARY

COMPAGO IS A LIBRARY BINDING AND BY USED IS A LIBRARY

COMPAGO IS A LIBRARY BINDING AND BY USED IS A LIBRARY

COMPAGO IS A LIBRARY BINDING AND BY USED IS A LIBRARY

COMPAGO IS A LIBRARY BINDING AND BY USED IS A LIBRARY

COMPAGO IS A LIBRARY BINDING AND BY USED IS A LIBRARY

COMPAGO IS A LIBRARY BINDING AND BY USED IS A LIBRARY

COMPAGO IS A LIBRARY BINDING AND BY USED IS A LIBRARY

COMPAGO IS A LIBRARY BY BINDING AND BY USED IS A LIBRARY

COMPAGO IS A LIBRARY BY BINDING AND BY USED IS A LIBRARY

COMPAGO IS A LIBRARY BY BY BY A LIBRARY

COMPAGO IS A LIBRARY BY BY BY A LIBRARY

COMPAGO IS A LIBRARY BY BY BY A LIBRARY

COMPAGO IS A LIBRARY BY BY BY A LIBRARY

COMPAGO IS A LIBRARY BY BY BY A LIBRARY

COMPAGO IS A LIBRARY BY BY BY A LIBRARY

COMPAGO IS A LIBRARY BY BY BY A LIBRARY

COMPAGO IS A LIBRARY BY BY A LIBRARY

COMPAGO IS A LIBR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Generic DNA sequence to generate a random TSAR petide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; reffector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss. Synthetic.
                                                                                                                                                                                                 Ø
                                                                                                                                            55..60
/*tag-
//tog- "this sequence represents 'Z'; Z can be
sequence of 6, 9 or 12 nucleotides (see
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1497 GAGGCCTGGGGGCACCAGCCGGCGCAGGCCCGCACGCAAGCCGTACACC 1446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         34; Mismatches 73; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         direct and rapid detection in a screening process Sequence 114 BP; 0 A; 2 C; 2 G; 2 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 38; DB 12; ]
Pred. No. 1.33e-06;
                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers 55..60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       77 8
Q70468 standard; DNA; 114 BP.
Q70468;
                                                                                                                                                                                                                                                                                                                                                                                                   31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
Fowlkes DM, KAY BK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2.0%;
llarity 4.5%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 05-APR-1995 (first entry)
                                                                                                                                                                                                                                                 comments)"
                                                                                                                                                                                                                                                                                                                                      US-013416.
US-176500.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /*tag=
                                                                                                                                                                                                                                                                                                                           77600D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 94-279739/34.
P-PSDB; R65153.
                                                                                                                                                                                                                                                                                                                                                                        30-DEC-1993;
31-JAN-1994;
                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                           01-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                01-FEB-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
```

```
Trendity No. 1917

Identifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins PT comprising a binding domain and an effector domain bisclosure; Page 35; 255pp; English.

Disclosure; Page 35; 255pp; English.

CO 70468 is a generic DNA sequence used to generate random TSAR (Totally Synthetic Affinity Reagents) peptides. This generic formula can also be represented as follows: X(NNB)1(TGC)(NNB)6Z(NNB)7(TGC)(NNB)10Y. X and Y are flanking restriction sites (X is not the same as Y) that are contracted for these generic sequences are shown in CR5151-34. TSARS are concatenated by these generic sequences are shown in a fifthity for a ligand and a second effector peptide portion that is comprising at least two functional regions - a binding domain with a fifthity for a ligand and a second effector peptide portion that is chanically or biologically active. They may further comprise a linker peptide between the 2 domains. The oligonucleotides are also designed so that the expressed peptide contains 2 or 4 cysteine residues so that the expressed peptide contains 2 or 4 cysteine residues so confer some degree of conformational rigidity to the peptides. The TSARs or comprising a TSAR binding domain can be used in vivo to deliver a chemically or biologically active moiety, eg. metal ion, caling and an also replace the function of macromolecules, eg. ... encoded the conformation of macromolecules, eg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       monoclonal or polyclonal antibodies and therefore circumvent the need for complex methods of hybridoma formation or in vivo antibody production. The TSARs are easily characterised and have designed activity allowing direct and rapid detection in a screening process. Sequence 114 BP; 0 A; 2 C; 2 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1542 CITGGTGTTCCTGAGGAAGCGGCGTTCGTTGTGCCTGGAGCCCCAGAGGCCTGGGGGCAC 1483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               05-APR-1995 (first entry)
Generic DNA sequence to generate a random TSAR petide library.
TSAR, totally synthetic affinity reagent, synthetic; binding domain;
effector domain; concateneated heterofunctional protein; linker;
direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /*tag= a
/note= "this sequence represents '2'; Z can be
sequence of 6, 9 or 12 nucleotides (see
comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1482 CAGCCGGCGCAGGCCCGCACGAAGCCGTACACCTGCCAGGGGCTGCTG 1431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            63 banbanbanbanbanbanbtgcanbanbanbanbanbanbanbanbanbanb 114
           can
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 114;
/note= "this sequence represents 'Z'; Z sequence of 6, 9 or 12 nucleotides (see
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No. 1.33e-06;
34; Mismatches 73;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          77 9
Q70465 standard; DNA; 114 BP.
                                                                                                                                                                                                                01-FEB-1993; US-013416.
30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
(UINC-) UNIV NORTH CAROLINA.
FOWLKES DM, RAY BK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2.0%;
                                                                               comments)'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-013416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18-AUG-1994.
01-FEB-1994; U00977
01-FEB-1993; US-013
                                                                                                                                                                                  T00977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                              WPI; 94-279739/34.
P-PSDB; R65154.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q70465;
05-APR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO9418318-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
```

ö

```
Query Match
                                                                                                                                                                                        105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
ID Q7
AC Q7
                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                 გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
   នូន្តទទួន
                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                     ò
                                                                                                 PFENDE WOLLOW and WOLLDI.

PTENDE WOLLOW and WOLLDI.

PTENDER WOLLOW and WOLLDI.

PTENDER WOLLOW AND WOLLOW INDEATY EXPRESSING fusion proteins

PT Gentifying proteins or peptide(s) which bind a ligand - by

Screening a recombinant weetor library expressing fusion proteins

PT Comprising a binding domain and an effector domain

Disclosure; Page 35; 255pp; English.

CG 070465 is a generic DNA Sequence used to generate random TSAR (Totally

CG official a generic DNA Sequence used to generate candom TSAR (Totally

CG and Y are flanking restriction Sites (X is not the same as Y) that are

CC other specified further. Other generic sequences are shown in Q7046-68.

CC other specified further of energied by these generic sequences are shown in

CC other specified sequenced by these generic sequences are shown in

CC of all spind and a second effector peptide portion that is

CC affinity for a ligand and a second effector peptide portion that is

CC affinity for a ligand and a second effector peptide portion that is

CC that the expressed peptide contains 2 or 4 cysteine residues

CC that the expressed peptide contains 2 or 4 cysteine residues

CC that the expressed peptide contains 2 or 4 cysteine residues

CC that the expressed peptide contains 2 or 4 cysteine residues

CC that the expressed peptide contains 2 or 4 cysteine residues

CC in, or flanking, the unpredicted or variant residues. These residues

CC compris compris, peptide, toxin or enzyme, to the specific target or on the

CC adoiver a chemically or biologically active moiety, eg. metal ion,

C adoiver a peptide, toxin or enzyme, to the specific target or on the

CC complex methods of hybridomal attibodies and therefore circumvent the need

CC for complex methods of hybridomal antibodies

CC complex confirming direct and appid decretion in vivo antibody

CC activity allowing direct and appid decretion or in vivo antibody

CC activity allowing direct and appid decretion or preserved or activity allowing direct and appid appid appid and a performation or in v
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A method for treating airway disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonucleotide (ON) to the airway epithelium of the subject. The present sequence is an antisense oligonucleotide specific for the human endothelin-1 targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1527 GAAGCGGCGTTCGTTGTGCCTGGAGCCCCAGAGGCCTGGGGGGACCAGCCGGCGCGAGGCA 1468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   asthma, chronic obstructive pulmonary disease, bronchitis and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1467 GGCCCGCACGAAGCCGTACACCTGCCAGGGGCTGCTGCTGCTGGCGGAGCAGC 1416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            63 bnnbnnbnnbnnbnnbnnbnnbnnbnnbnnbnnbnnbtqcnnbnnbnnb 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15-SEP-1997 (first entry)
Muman endochelln-1 antisense oligonucleotide.
Asthma: airway enthelium; adenosine free; cystic fibrosis; chronic obstructive pulmonary disease; bronchitis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 38; DB 12; Length 114
Pred. No. 1.33e-06;
34; Mismatches 73; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7
G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim 5; Page 38; 71pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         T76405 standard; DNA; 178 BP.
                 31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19-DEC-1996.
06-JUN-1996; U09306.
07-JUN-1995; US-474497.
(UYEC-) UNIV EAST CAROLINA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            larity 4.5%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0 A;
                                                                    WPI; 94-279739/34.
P-PSDB; R65150 and R65151.
US-176500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Metzger WJ, Nyce JW;
WPI; 97-051871/05.
                                                    Kay BK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         114 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO9640162-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             T76405;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               subject
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
```

```
WPI: 88-2792746.

Throducing random point mutations into nucleic acods -
Introducing random point mutations into nucleic acods -
Introducing random point mutations into nucleic acods -
Introducing random point mutations are misincorporation, completion of molecules and screening.

Disclosure; p: English.

Random point mutations were introduced into the alpha fragment of
E.coli beta-galactosidase. The wild type sequence was obtained as a single stranded template and an oligonucleotide was hybridised to
it to generate a popn of DNA molecules within the specified region. The possible nucleotide positions within a specified region. The variable 3' ends generated in this way are used as primers for variable 3' ends generated in this way are used by the transcriptase and the molecules are completed to forms that can be maplified and then expressed in a suitable host-vector system.

The sequence covers all 176 difft base substitutions, most of which cocurred singularly in any given mutant.
                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                 80 hvgccgymrttthhyrrmrbnvyrdynrsdaaawyccyrrsvkydccynachhddhyvyb 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             205 AAGCCGCCGGGTCCCCGCGCTGCACCAGCCGCCAGCCCTGGGGCCCCCAGGCGCCCGCACGA 146
                                                                                                                                                                                                                                                                                             cbbgccbcbbbcbgcbgbbbbbcbtcbtgbgcbbbtbbtccbttctgbbbbbbbgggbt 164
airway diseases characterised by an inflammatory response. By eliminating adenosine from the antisense ON, its liberation upon antisense degradation is prevented; thereby preventing adenosine-induced bronchoconstroin in patients with hyper-reactive airways. Sequence 178 BP; 0 A; 52 C; 46 G; 32 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   140 bbvynvhnhnncncccbnnhvchnvhbnnhrnwayvrhdarrddvhccvchccgatcg 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N81164;
08-NoV-1990 (first entry)
Base substituted E.coli beta-galactosidase alpha-fragment.
E.coli beta galactosidase alpha-fragment; base substitutions; ss.
Escherichia coli.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               108 Others;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      03-APR-1987; US-034819.
(SUSO) SUOMEN SOKERI OY.
Lehtovaara P, Knowles J, Koivula A, Bamford J, Reinikainen T;
                                                                                                                                                                           Length 178;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 204;
                                                                                                                                                                        Score 39; DB 32; Length 178
Pred. No. 4.21e-07;
34; Mismatches 17; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 52; Mismatches 47; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               47 C; 17 G; 11 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /*tag= a
/function=multiple cloning site
187..204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 38; DB 1; L
Pred. No. 1.33e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N81164 standard; DNA; 204 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ВÞ.
                                                                                                                                                                        2.0%;
llarity 30.1%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 2.0%;
Best Local Similarity 16.1%;
Matches 19; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               21 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   UT 12
Q70467 standard; DNA; 114
Q70467;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                         165 cbbbbbcctccg 177
                                                                                                                                                                                                                                                                                                                                                                                                                                             256 CCGCCCCCCCC 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19..61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               204 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              30-MAR-1988; 105163
03-APR-1987; US-0348
                                                                                                                                                                                                      Best Local Similarity
Matches 22; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
```

```
30-DEC-1993;
31-JAN-1994;
   misc_feature
                                                                  18-AUG-1994.
01-FEB-1994;
                                                                                                 01-FEB-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q70465;
05-APR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO9418318-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Synthetic.
                                                                                                                                                                   Fowlkes DM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Therefore, Robert 18 and 18 an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99 CICCCIGCIGCGCAGCCACIACCGCGAGGIGCIGCCGCIGGCCACGIICGIGCGGCGCCI 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Generic DNA sequence to generate a random TSAR peptide library.

TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concatenated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.

Synthetic.

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Generic DNA sequence to generate a random TSAR petide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                     ø
                                                                                                                                             /note- "this sequence represents 'z'; z can be sequence of 6, 9 or 12 nucleotides (see
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 159 GGGCCCCCAGGCGTGGCGGGGGGGGGGGCCCGGCGGCTTTCCGC 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               74; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             direct and rapid detection in a screening process Sequence 114 BP; 0 A; 2 C; 2 G; 2 T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 36; DB 12; I
Pred. No. 1.31e-05;
34; Mismatches 74;
                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             r 13
Q70470 standard; DNA; 114 BP.
                                                                                                                                                                                                                                                                                               (UYNC-) UNIV NORTH CAROLINA. Fowlkes DM, Kay BK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.98;
3.68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          070470;
10-APR-1995 (first entry)
 (first entry)
                                                                                                                                                                                    comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4; Conservative
                                                                                                                                                                                                               18-AUG-1994.

01-FEB-1994; U00977.

01-FEB-1993; US-013416.

30-DEC-1993; US-176500.

31-JAN-1994; US-189331.
                                                                                                                  ..60
                                                                                                                                    /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                            WPI; 94-279739/34.
                                                                                                                                                                                                                                                                                                                                               P-PSDB; R65153
                                                                                                                  misc_feature
05-APR-1995
                                                                                                                                                                                                  WO9418318-A
                                                                                 Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
 ò
```

```
Tidentifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins or comprising a binding domain and an effector domain proteins bisclosure; Page 36; 255pp; English.

Disclosure; Page 36; 255pp; English.

Cy10470 is a generic DNA Sequence used to generate random TSAR (Totally Cy10470 is a generic DNA Sequence used to generic formula can also be represented as follows: X(NNB) 4(CAC)(NNB) 82(NNB) 8C(AC)(NNB) 8C(AC)(NNB) Y. X and Y are flanking restriction sites (X is not the same content generic sequences (Q70471-73) have invariant histidine residues other generic sequences (Q70471-73) have invariant histidine residues incorporated into variant sequences. TSARs are concatenated heterofunctional proteins or peptides, comprising at least two functional effector peptide portion that is chemically or biologically active. They may further comprise a linker peptide between the 2 domains. The TSARs or compens. comprising a TSAR binding domain can be used in vivo to deliver a chemically or biologically active moiety, eg. metal ion, and an a second and active to the proteins of macromolecules, eg. metal ion, and proteins of macromolecules, eg. metal ion, and an an active to the component of macromolecules, coll. They can also replace the function of macromolecules, eg.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      monoclonal or polyclonal antibodies and therefore circumvent the need for complex methods of hybridoma formation or in vivo antibody production. The TSARs are easily characterised and have designed activity allowing direct and rapid detection in a screening process. Sequence 114 BP; 5 A; 10 C; 0 G; 0 T:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Generic DNA sequence to generate a random TSAR petide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3 bnnbnnbnnbcacnnbnnbnnbnnbcacnnbnnbnnbnnbnnbnnbnnbnnbnnnnnn 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 can
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 36; DB 12; Length 114; Pred. No. 1.31e-05; 30; Mismatches 71; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note= "this sequence represents 'Z'; Z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sequence of 6, 9 or 12 nucleotides (see comments)"
                                                                   /note= "encoded by Z (see comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18-AUG-1994.
01-FEB-1994; U00977.
01-FEB-1993; US-013416.
30-DEC-1993; US-176500.
31-JAM-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q70465 standard; DNA; 114 BP.
                                                                                                                                                                                                                                                                                                                            (UYNC-) UNIV NORTH CAROLINA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 1.9%;
Best Local Similarity 9.8%;
Matches 11; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                                                                                                                                                                                                  US-176500.
US-189331.
55..60
/*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 55..60
/*tag=
                                                                                                                                                                                                                       US-013416
                                                                                                                                                                                                                                                                                                                                                                     BK;
                                                                                                                                                                               T0000
                                                                                                                                                                                                                                                                                                                                                                                               WPI; 94-279739/34.
P-PSDB; R58378.
```

```
Identifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins comprising a binding domain and an effector domain Disclosure; Page 35, 25pp; English. Olsclosure; Page 35, 25pp; English.
                                                                                                                                                                                                                                                                                                                                                     69 GCCGCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCTGCTGCTGCAGCCACTACCGCGAGGT 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Generic DNA sequence to generate a random ISAR peptide library.
ISAR; totally synthetic affinity reagent; synthetic; binding domain;
effector domain; concateneated heterofunctional protein; linker;
direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                   3 banbanbanbanbanbtgcanbanbanbanbanbanbanbanbanbanbanbanban
                                                                                                                                                                                                                                                                                                                  0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /*tag= a
//note= "this sequence represents 'Z'; Z can be a
sequence of 6,9 or 12 nucleotides (see
comments)"
                                                                                                                                                                                                                                                                                                                                                                       129 GCTGCCGCTGGCCACGTTCGTGCGCCCTGGGGCCCCCAGGGCTGGCGGCTG 180
                                                                                                                                                                                                                                                                                                Length 114;
                                                                                                                                                                                                                                                                                           Score 36; DB 12; Length 114;
Pred. No. 1.31e-05;
33; Mismatches 74; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                      .T 15
070469 standard; DNA; 114 BP.
070469;
07-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
(UINC-) UNIV NORTH CAROLINA.
FOWLKES DM, KAY BK;
                                                                                                                                                                                                                                                                                            1.9%;
Best Local Similarity 4.5%;
Matches 5; Conservative
                R65150 and R65151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   55..60
/*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-013416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   U00977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 94-279739/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-FEB-1993; 030-DEC-1993; 031-JAN-1994; 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18-AUG-1994.
01-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO9418318-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                    유
                                                                                                                                                                                                                                                                                                                                                                                                                                ô
                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                          ö
```

```
contains 2 or 4 cystering residues positioned in, or flanking, the unpredicted or variant residues. These residues confer some degree of conformational rigidity to the peptides. The TSARs or compens. comprising a TSAR binding domain can be used in vivo to deliver a chemically or biologically active moiety, eg. metal ion, radioisotope, peptide, toxin or enzyme, to the specific target or on the cell. They can also replace the function of macromolecules, eg. monoclonal or polyclonal antibodies and therefore circumvent the need for complex methods of hybridoma formation or in vivo antibody production. The TSARs are easily characterised and have designed activity allowing direct and rapid
This generic formula can be represented as follows: X(TGC)(NNB)10-
(TGC)(NNB)2(TGC)(NNB)14(TGC)Y. X and Y are flanking restriction
sites (X is not the same as Y) that are not specified further. This
sequence generates peptides that are clovesleaf in structure. Other
generic sequences are shown in Q70465-68. Other specific peptides
generated by these generic sequences are shown in R65150-54. TSARs are
concatenated heterofunctional proteins or peptides, comprising at least
two functional regions - a binding domain with affinity for a ligand and
a second effector peptide portion that is chemically or biologically
active. They may further comprise a linker peptide between the 2 domains.
The oligonucleotides are also designed so that the expressed peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1085 IGCTCCTIGTCGCCTGAGGAGTAGAGGAAGTGCTTGGTCTCGGCGTACACCGGGGGACAA 1026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 tgcnnbnnbnnbnnbnnbnnbnnbnnbnnbtgcnnbnnbnnbnnbnnbnnbnnbnnbnnbnn 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1025 GGCGTGTCCCAGGGACGTGGTGCCCGCATGTGGATGGGGGGCCCCGCGTGC 972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 36; DB 12; Length 114;
Pred. No. 1.31e-05;
31; Mismatches 74; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4
G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4
Ω;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 detection in a screening process. Sequence 114 BP; 0 A; 4 C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ç,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                엄
```

Search completed: Thu Dec 24 15:06:48 1998 Job time : 666 secs.

THIS PAGE BLANK (USPTO)

*************************************	***************************************

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

 $\rm n.\,a.$  -  $\rm n.\,a.$  database search, using Smith-Waterman algorithm with gap extension penalties as well as gap opening penalties MPsrch_nna

Thu Dec 24 15:10:17 1998; MasPar time 3273.33 Seconds 628.529 Million cell updates/sec Run on:

Tabular output not generated.

Title: Description: Perfect Score: N.A. Sequence: Comp:

>US-08-951-733-13 (1-1920) from US08951733.seq (1 of 1920

1 CACGCGTCCGGGCAGCGCTG.......CCAGGCCCGCCCTGCTGACG 1920 GTGCGCAGGCCCGTCGCGAC......GGTCCGGGCGGGACGACTGC

TABLE default Gap open 30; Gap extend 1 Scoring table:

Dbase 0; Query 0 Nmatch STD

1665728 seqs, 535777091 bases x 2 Searched:

Post-processing:

Minimum Match 0% Listing first 45 summaries

1:P9 2:U6000 3:U6001 4:U6002 5:U6003 6:U6004 7:U6005 8:U6006 9:U6007 10:U6008 11:U7 12:U80 13:U81 14:U82 15:U83 16:U84 17:U84B 18:U85 19:U86 20:U87 21:U88 23:U99A 24:U90B 25:U91 26:NEWP 27:NEWU9 n-pending Database:

Mean 10.626; Variance 4.576; scale 2.322 Statistics:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Score Match Length DB ID Description Processing Process			•					
100.0 2848 22 US-08-951- Sequence 13, Application 100.0 3798 22 US-08-951- Sequence 19, Application 99.6 7029 22 US-08-951- Sequence 19, Application 99.4 3855 22 US-08-912- Sequence 14, Application 99.4 4015 22 US-08-912- Sequence 17, Application 99.4 4015 22 US-08-912- Sequence 17, Application 99.4 4015 21 US-08-052- Sequence 17, Application 99.4 4015 21 US-08-854- Sequence 35, Application 99.3 4023 23 US-08-052- Sequence 173, Application 178.0 4200 22 US-08-912- Sequence 173, Application 18.1 4029 21 US-08-912- Sequence 173, Application 18.6 3496 23 US-09-026- Sequence 1, Application 18.6 336 23 US-09-026- Sequence 1, Application 19.5 316 3496 23 US-09-026- Sequence 1, Application 13.5 535 22 US-08-911- Sequence 5, Application 13.5 535 22 US-08-911- Sequence 52, Application 14.5 53.5 22 US-08-911- Sequence 53, Application	Result No.	Score	Query Match	Length	DB	QI	Description	Pred. No.
100.0 3798 22 US-08-951- Sequence 19, Applicati 0 99.6 7029 22 US-08-911- Sequence 1, Applicatio 0 99.4 3855 22 US-08-912- Sequence 1, Applicatio 0 99.4 3855 22 US-08-912- Sequence 18, Applicatio 0 99.4 4015 22 US-08-912- Sequence 1, Applicatio 0 99.4 4015 22 US-08-912- Sequence 1, Applicatio 0 99.4 4015 21 US-08-854- Sequence 224, Applicatio 0 99.3 4023 23 US-08-052- Sequence 35, Applicatio 0 99.3 4029 21 US-08-854- Sequence 173, Applicatio 1 US-08-814- Sequence 173, Applicatio 0 1 US-08-912- Sequence 1, Applicatio 0 1 US-08-911- Sequence 1, Applicatio 0 1 US-08-911- Sequence 52, Applicatio 2 US-08-911- Sequence 52, Applicatio	1	1920	100.0	2848	22	US-08-951-	13,	0.00e+00
99.6 7029 22 US-08-911- Sequence 1, Applicatio 99.4 3855 22 US-08-912- Sequence 1, Applicatio 99.4 3855 22 US-08-912- Sequence 18, Applicatio 99.4 4015 22 US-08-912- Sequence 1, Applicatio 09.4 4015 21 US-08-912- Sequence 1, Applicatio 09.4 4015 21 US-08-912- Sequence 1, Applicatio 09.3 4023 23 US-09-052- Sequence 123, Applicatio 183.1 4029 21 US-08-854- Sequence 173, Applicatio 183.1 4029 21 US-08-854- Sequence 173, Applicatio 183.1 4029 21 US-08-912- Sequence 6, Applicatio 13.5 335 22 US-08-912- Sequence 36, Applicatio 13.5 335 22 US-08-912- Sequence 36, Applicatio 13.5 335 22 US-08-911- Sequence 36, Applicatio 13.5 335 22 US-08-911- Sequence 36, Applicatio 13.5 335 22 US-08-911- Sequence 36, Applicatio 21.3.5 23 US-08-911- Sequence 52, Applicatio 21.3.5 23 US-08-911- Sequence 52, Applicatio 21.3.5 20.3.0.0.91	7	1920	100.0	3798	22	US-08-951-	19,	0.00e+00
99.4 3855 22 US-08-912- Sequence 4, Applicatio 0 99.4 3855 22 US-08-911- Sequence 18, Applicatio 0 99.4 4015 22 US-08-912- Sequence 1, Applicatio 0 99.4 4015 24 US-08-912- Sequence 1, Applicatio 0 99.4 4015 21 US-08-854- Sequence 224, Applicatio 0 99.3 4023 23 US-08-854- Sequence 35, Applicatio 83.1 4029 21 US-08-854- Sequence 173, Applicatio 1 4200 22 US-08-812- Sequence 6, Applicatio 0 23.6 3496 23 US-09-042- Sequence 1, Applicatio 0 1 4 336 23 US-09-042- Sequence 36, Applicatio 1 1 5 535 22 US-08-911- Sequence 52, Applicatio 1 4 5 355 22 US-08-911- Sequence 52, Applicatio 1 4 5 386 23 US-08-911- Sequence 52, Applicatio 1 4 5 386 23 US-08-911- Sequence 52, Applicatio 1 4 5 386 23 US-08-911- Sequence 52, Applicatio 2 US-08-911- Sequence 52, Applicatio 2 US-08-911- Sequence 52, Applicatio 6 US-08-911- Sequence 6 US-08-911- Sequence 6 US-08-911- Sequence 72, Applicatio 6 US-08-911- Seque	m	1912	9.66	7029	22	US-08-911-	٦,	0.00e+00
99.4 3855 22 US-08-911- Sequence 18, Application 199.4 4015 24 US-08-912- Sequence 1, Application 199.4 4015 24 US-09-052- Sequence 1, Application 199.4 4015 21 US-08-052- Sequence 17, Application 199.3 4023 23 US-09-026- Sequence 224, Application 14029 21 US-08-854- Sequence 173, Application 183.1 4029 21 US-08-814- Sequence 173, Application 18.0 4200 22 US-08-912- Sequence 6, Application 13.5 335 22 US-09-026- Sequence 1, Application 13.5 335 22 US-08-911- Sequence 36, Application 13.5 355 22 US-08-911- Sequence 52, Application 13.5 235 22 US-08-911- Sequence 13.5 23 US-08-911- Sequence 13.5 24 US-08-911- Sequence 13.5 24 US-08-911- Sequence 13.5 24 US-08-911- Sequenc	4	1909	99.4	3855	22	US-08-912-	4	0.00e+00
99.4 4015 22 US-08-912- Sequence 1, Applicatio 0 99.4 4015 24 US-09-052- Sequence 1, Applicatio 0 99.4 4015 21 US-08-854- Sequence 224, Applicatio 0 99.3 4023 23 US-08-026- Sequence 35, Applicatio 0 83.1 4029 21 US-08-854- Sequence 173, Applicatio 0 83.1 4029 21 US-08-854- Sequence 173, Applicatio 7 Ru 4200 22 US-08-912- Sequence 6, Applicatio 0 346 23 US-09-042- Sequence 36, Applicatio 0 13.5 535 22 US-08-911- Sequence 52, Applicatio 1 13.5 S35 22 US-08-911- Sequence 52, Applicatio 1 1 13.5 S35 22 US-08-911- Sequence 52, Applicatio 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5	1909	99.4	3855	22	US-08-911-	18,	0.00e+00
99.4 4015 24 US-09-052- Sequence 1, Applicatio 0 99.4 4015 21 US-08-854- Sequence 224, Applicat 0 99.3 4023 23 US-09-026- Sequence 35, Applicat 0 83.1 4029 21 US-08-851- Sequence 173, Applicat 0 83.1 4029 21 US-08-851- Sequence 173, Applicat 0 78.0 4200 22 US-08-912- Sequence 6, Applicatio 2 3.6 3496 23 US-09-042- Sequence 1, Applicatio 1 35 535 22 US-08-911- Sequence 52, Applicatio 2 13.5 Septence 52, Applicatio 2 13.5 Sequence 53, Applicatio 2 13.5 Sequence 53, Applicatio 2 13.5 Sequence 54, Applicatio 2 13.5 Sequence 5	ø	1909	99.4	4015	22	US-08-912-	, ,	0.00e+00
99.4 4015 21 US-08-854- Sequence 224, Applicat 0 99.3 4023 23 US-09-026- Sequence 35, Applicati 0 83.1 4029 21 US-08-854- Sequence 173, Applicati 0 83.1 4029 21 US-08-854- Sequence 173, Applicati 78.0 4200 22 US-08-912- Sequence 6, Applicatio 0 23.6 3496 23 US-09-042- Sequence 1, Applicatio 0 14.6 3346 23 US-09-042- Sequence 36, Applicatio 1 13.5 535 22 US-08-911- Sequence 52, Applicatid 1 5 US-08-911- Sequence 52, Applicatid 1 S US-08-911- S	7	1909	99.4	4015	24	US-09-052-	_	0.00e+00
99.3 4023 23 US-09-026- Sequence 35, Applicati 0 83.1 4029 21 US-08-854- Sequence 173, Applicat 0 83.1 4029 21 US-08-854- Sequence 173, Applicat 0 78.0 4200 22 US-08-912- Sequence 6, Applicatio 0 23.6 3496 23 US-09-042- Sequence 1, Applicatio 0 14.6 3346 23 US-09-026- Sequence 36, Applicatio 1 13.5 535 22 US-08-911- Sequence 36, Applicatio 2	80	1909	99.4	4015	21	US-08-854-		0.00e+00
83.1 4029 21 US-08-854- Sequence 173, Applicat 0 83.1 4029 21 US-08-851- Sequence 173, Applicat 0 78.0 4200 22 US-08-912- Sequence 6, Applicatio 0 23.6 3496 23 US-09-042- Sequence 1, Applicatio 0 14.6 346 23 US-09-065- Sequence 36, Applicatic 13.5 535 22 US-08-911- Sequence 52, Applicatic 213.5	σ	1906	99.3	4023	23	us-09-056-		0.00e+00
83.1 4029 21 US-08-851- Sequence 173, Applicat 0 78.0 4200 22 US-08-912- Sequence 6, Applicatio 0 23.6 3496 23 US-09-042- Sequence 1, Applicatio 14.6 3346 23 US-09-026- Sequence 36, Applicatio 13.5 535 22 US-08-911- Sequence 52, Applicatio 2 13.5 52 US-08-911- Sequence 52, Applicatio	10	1596	83.1	4029	21	US-08-854-	173,	0.00e+00
78.0 4200 22 US-08-912- Sequence 6, Applicatio 0 23.6 3496 23 US-09-042- Sequence 1, Applicatio 0 14.6 3346 23 US-09-026- Sequence 36, Applicati 2 13.5 535 22 US-08-911- Sequence 52, Applicati 6 24.6 42.6 42.6 42.6 42.6 42.6 42.6 42	11	1596	83.1	4029	21	US-08-851-	173,	0.00e+00
23.6 3496 23 US-09-042- Sequence 1, Applicatio 0 14.6 3346 23 US-09-026- Sequence 36, Applicati 2 13.5 535 22 US-08-911- Sequence 52, Applicati 6	12	1497	78.0	4200	22	US-08-912-	ý	0.00e+00
14.6 3346 23 US-09-026- Sequence 36, Applicati 2 13.5 535 22 US-08-911- Sequence 52, Applicati 6	13	453	23.6	3496	23	US-09-042-	'n	0.00e+00
13.5 535 22 US-08-911- Sequence 52, Applicati 6	14	281	14.6	3346	23	us-09-056-	36	2.85e-234
	12	259	13.5	535	22	US-08-911-	52,	6.37e-213

· rnp

```
STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                           JT 2
US-08-951-733-19
                                                                                                                                                                                                                                                1501
                                                                                                                                                                                                                                                                                                                                                          1741
                                                     1021
                                                                 1021
                                                                             1081
                                                                                        1081
                                                                                                    1141
                                                                                                               1141
                                                                                                                            1201
                                                                                                                                        1201
                                                                                                                                                   1261
                                                                                                                                                               1261
                                                                                                                                                                                      1321
                                                                                                                                                                                                             1381
                                                                                                                                                                                                                          1441
                                                                                                                                                                                                                                                            1501
                                                                                                                                                                                                                                                                        1561
                                                                                                                                                                                                                                                                                    1561
                                                                                                                                                                                                                                                                                                1621
                                                                                                                                                                                                                                                                                                           1621
                                                                                                                                                                                                                                                                                                                       1681
                                                                                                                                                                                                                                                                                                                                   1681
                                                                                                                                                                                                                                                                                                                                               1741
                                                                                                                                                                                                                                                                                                                                                                      1801
                                                                                                                                                                                                                                                                                                                                                                                 1801
                                                                                                                                                                                                                                                                                                                                                                                              1861
                 901
                                         961
                                                                                                                                                                          1321
                                                                                                                                                                                                  1381
                                                                                                                                                                                                                                                                                                                                                                                                         1861
                              961
      901
                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
ID US
AC xx
                                                                                                                         ద
                                                                                                                                                  g
                                                                                                                                                                        셤
                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                      엄
                                                                                                                                                                                                                                                                                                                                                                                             셤
                  \delta
                            8
                                        ò
                                                  g
                                                                 ò
                                                                          셤
                                                                                     ò
                                                                                                 g
                                                                                                            ŏ
                                                                                                                                      à
                                                                                                                                                              ò
                                                                                                                                                                                      Q
                                                                                                                                                                                                ద
                                                                                                                                                                                                          à
                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                      ö
                                                                                                         CCCGCGATGCCGCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCGCAGCCATAC 120
                                                                                                                                 180
                                                                                                                                             180
                                                                                                                                                         240
                                                                                                                                                                                300
                                                                                                                                                                                            300
                                                                                                                                                                                                        360
                                                                                                                                                                                                                    360
                                                                                                                                                                                                                               420
                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                      480
                                                                                                                                                                                                                                                                  480
                                                                                                                                                                                                                                                                              540
                                                                                                                                                                                                                                                                                         540
                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                             999
                                                                                                                                                                                                                                                                                                                                        099
                                                                                                                                                                                                                                                                                                                                                    720
                                                                                                                                                                                                                                                                                                                                                                720
                                                                                                                                                                                                                                                                                                                                                                            780
                                                                                                                                                                                                                                                                                                                                                                                       780
                                                                                                                                                                                                                                                                                                                                                                                                    840
                                                                                                                                                                                                                                                                                                                                                                                                               840
                                                                                                                                                                                                                                                                                                                                                                                                                           900
                                                                                  9
                                                                                            9
                                                                      Gaps
                                                                                  CACGCGTCCGGGCACCGCTGCTGCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACC
                                                                                         CACGCGTCCGGGCAGCGCTGCGTGCGCACGTGGGGAAGCCCTGGCCCGGCCACC
                                                                                                                                 CGCGAGGTGCTGCCGCTGGCCACGTTCGTGCGGCCCTGGGGGCCCCCAGGGCTGGCGGCTG
                                                                                                                                      CCCGAGGTGCTGCCGCTGGCCACGTTCGTGCGGCGCCCTGGGGCCCCCAGGGCTGGCGGCGCTG
                                                                                                                                                              AGGCGTGGCGCTGCCCCTGAGCCGAGCGGACGCCCGTTGGGCAGGGTCCTGGGCCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                 GTGCAGCGGGGACCCGGCGGTTTCCGCGCGCTGGTGGCCCAGTGCCTGGTGTGCGTG
                                                                                                                                                                                CCCTGGGACGCACGCCCCCCCCCCCCCCCCCCTTCCGCCAGGTGTCCTGCTGAAG
                                                                                                                                                                                                        TGCGAACGGGCCTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCC
                                                                                                                                                                                                                                                                                                                                                                            CCGGGTGCGAGGAGGCGCGGGGCAGTGCCAGCCGAAGTCTGCCGTTGCCCCAAGAGGCCC
                                                                                                                                                                                                                               TTCGGCTTCGCGCTGCTGGACGGGGCCCGGGGGCCCCCCGAGGCCTTCACCAGC
                                                                      ö
                                                          Length 2848;
                                                                      Indels
                                                          DB 22;
.00e+00;
                                                                      ö
                                               0
                                                          Score 1920; DB;
Pred. No. 0.00e+(
0; Mismatches
                                               488
                                                ö
                                               945
TELEFAX: (805) 499-8011
INFORMATION FOR SEQ 1D NO: 13:
SEQUENCE CHARACTERISTICS:
LENGTH: 2848 base pairs
                                               ີ່ວ
                                               978
                 LENGTH: 2848 base pai
TYPE: nucleic acid
STRANDEDNESS: single
                                                         Query Match
Best Local Similarity 100.0%;
Matches 1920; Conservative
                                       MOLECULE TYPE: CDNA
UENCE 2848 BP; 437 A;
                                    linear
                                   TOPOLOGY:
                                               SEQUENCE
                                                                                  щ
                                                                                             Н
                                                                                                                                             121
                                                                                                          61
                                                                                                                     61
                                                                                                                                 121
                                                                                                                                                                    181
                                                                                                                                                                                241
                                                                                                                                                                                            241
                                                                                                                                                                                                       301
                                                                                                                                                                                                                   301
                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                     541
                                                                                                                                                                                                                                                                                                                 541
                                                                                                                                                                                                                                                                                                                                        501
                                                                                                                                                                                                                                                                                                                                                    661
                                                                                                                                                                                                                                                                                                                                                                199
                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                       721
                                                                                                                                                                                                                                                                                                                                                                                                   781
                                                                                                                                                                                                                                                                                                                                                                                                               781
                                                                                                                                                                                                                                                                                                                                                                                                                           841
                                                                                                                                                                                                                                                                                                                                                                                                                                      841
                                                                                                                                                         181
                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                             501
                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                             ò
                                                                                                         ద
                                                                                                                     ò
                                                                                                                                쉽
                                                                                                                                            ò
                                                                                                                                                        g
                                                                                                                                                                   ò
                                                                                                                                                                               g
                                                                                                                                                                                           ò
                                                                                                                                                                                                     g
                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                    ದ್ದ
                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                                        οy
                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                          음
                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                  요
                                                                                                                                                                                                                                                                                                                                                                                                                         윱
88888888888
                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                               ö
```

```
1860
                                                                    1080
                                                                                                                                                                1200
                                                                                                                                                                                                                                                                                                          1380
                                                                                                                                                                                                                                                                                                                                1380
                                                                                                                                                                                                                                                                                                                                                          1440
                                                                                                                                                                                                                                                                                                                                                                                                       1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                    1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1740
                      1020
                                                                                                                                                                                      1200
                                                                                                                                                                                                                                      1260
                                                                                                                                                                                                                                                            1320
                                                                                                                                                                                                                                                                                  1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1620
960
                                                                                                                                                                AGGCTCGTGGAGACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGG
                                                                                                                                                                                                            1441 TGGCAGGTGTACGGCTTCGTGCGGCCTGCCTGCCCGGCTGGTGCCCCCAGGCCTCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGTGTCTGGAGCAAGTTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGTGCAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGTGTCTGGAGCAAGTTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGTGCAGCTG
 GCCGAAGAAGCCACCTCTTTGGAGGGTGCGCTCTCTGGGCACGCGCCACTCCCATCC
                       GTGGGCCGCCACCACCACGCGGCCCCCCATCCACATCGCGGCCACCACCACCTGGGAC
                                                                    ACGCCTTGTCCCCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAG
                                                                                                                    GAGCAGCTGCGGCCCTCCTTCCTACTCAGCTCTGAGGCCCCAGCCTGACTGGCGCTCGG
                                                                                                                                                                                                                                                                                                                                                          GAGGAGGAGGACACAGACCCCCGTCGCCTGGTGCAGCTGCTCCGCCAGCACACAGCAGCCCCC
                                                                                                                                                                                                                                                                                                                                                                                 GGCTCCAGGCACAACGAACGCCGCTTCCTCAGGAACACCCAAGAAGTTCATCTCCTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAGCATGCCAAGCTCTCGCTGCAGGAGCTGACGTGGAAGATGAGCGTGCGGGACTGCGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGGCTGCGCAGGAGCCCAGGGGTTGGCTGTTCCGGCCGCCAGAGCACCGTCTGCGTGAG
```

UNC; 3798 BP

DNA;

540

480

481

420

421

600 661 660

601

720

781

721

780

901

Mon

```
AGGCGTGGCGCTGCCCTGAGCCGAGCGGACGCCCCTTGGGCAGGGTCCTGGGCCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1021 ACGCCTTGTCCCCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIGCCCCGCCTGCCCCAGCGCTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTCGGCTTCGCCTGCTGGACGGGCCCGCGGGGCCCCCCGAGGCCTTCACCAGC
                                                                                                                     CTGCTGCTGCGCGCGCGGCGACGACGTGCTTCACCTGCTGGCACGCTGCGCGCTC
                                                                                                                                    TTTGTGCGGGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCGCCGCTGTACCAGCTC
                                                                                                                                                                                                                                     GCGCTGCCACTCAGGCCCGGCCCCCCCCACACGCTAGTGGACCCCGAAGGCGTCTGGGA
                                                                                                                                                                                                                                                                                               TGCGAACGGGCCTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCC
                                                                                                                                                                                                                                                                                                              781 AGGCGTGGCGCTGCCCTGAGCCGGAGGGCACGCCCGTTGGGCAGGGGTCCTGGGCCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         962 GIGGGCCGCCACCACGCGGGCCCCCCATCCACATCGCGGCCACCACACGTCCCTGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACGCCTTGTCCCCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGCAGCTGCGGCCCTCCTTCCTACTCAGCTCTGAGGCCCAGCCTGACTGGCGCTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGGCTCGTGGAGACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTGCCCCGCCTGCCCCAGCGCTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AACCACGCGCAGTGCCCCTACGGGGTGCTCCTCAAGACGCACTGCCCGCTGCGAGCTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTCACCCCAGCAGCCGGTGTCTGTGCCCGGGAGAAGCCCCCAGGGCTCTGTGGCGGCCCCC
                                                            GTCACCCCAGCAGCCGGTGTCTGTGCCCGGGAGAAGCCCCCAGGGCTCTGTGGGCGCGCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1381
    362
                               361
                                                            422
                                                                                      421
                                                                                                                    482
                                                                                                                                               481
                                                                                                                                                                            542
                                                                                                                                                                                                         541
                                                                                                                                                                                                                                     602
                                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                                             662
                                                                                                                                                                                                                                                                                                                          661
                                                                                                                                                                                                                                                                                                                                                                                                                782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                      용
                                                                                      ò
                                                                                                                  용
                                                                                                                                               à
                                                                                                                                                                         8
                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                    용
                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCCGCGATGCCGCGCGCTCCCCGCTGCGAGCCGTGCGCTCCCTGCTGCGCGAGCCACTAC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCTGGGACGCACGCCCCCCCCCCCCCCCTTCCTTCCGCCAGGTGTCTGCCTGAAG 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCGCGATGCCGCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCCACTAC 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGCGAGGTGCTGCCGCTGGCCACGTTCGTGCGGCGCCTGGGGGCCCCAGGGCTGGCGGCTG 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CAGGGTCGGGCAGCGCTGCGTCCTGCTGCGCAGTGGGAAGCCCTGGCCCCGGCCAC 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 CACGCGTCCGGGCAGCGCTGCTGCTGCGACGTGGGAAGCCCTGGCCCCGGCCACC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTGCAGCGCGGGGGCCTTTCCGCGCGCTGGTGGCCCAGTGCCTGGTGTGCGTG
Sequence 19, Application US/08951733
Sequence 19, Application US/08951733
GENERAL INFORMATION:
APPLICANT: Harrington, Lea A.
APPLICANT: Robinson, Murray O.
TITLE OF INVENTION: NOVEL GENES ENCODING TELOMERASE PROTEINS NUMBER OF SEQUENCES: 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 3798;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MOLECULE TYPE: CDNA
SEQUENCE 3798 BP; 613 A; 1310 C; 1213 G; 662 T; 0 OTHER
                                                                                                                                                                                              CURPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPAtible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/951,733
FILING DATE: 16-OCT-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 1920; DB 22;
Pred. No. 0.00e+00;
0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                    CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/873,039
FILING DATE: 11-UDN-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/751,189
FILING DATE: 15-NOV-1996
ATTORNEY AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE/DOCKET NUMBER: A-433B TELECOMMUNICATION INFORMATION:
                                                                                                STREET: One Amgen Center Drive CITY: Thousand Oaks
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEPHONE: (805) 447-6504
TELEFAX: (805) 499-8011
INFORMATION FOR SEQ ID NO: 19:
SEQUENCE CHARACTERISTICS:
LENGTH: 3798 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                          34,688
                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME: Oleski, Nancy A. REGISTRATION NUMBER: 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity 100.0%;
Matches 1920; Conservative
                                                                                                   CORRESPONDENCE ADDRESS:
ADDRESSEE: Amgen Inc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                      ZIP: 91320-1789
                                                                                                                                                                            USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOPOLOGY:
                                                                                                                                                                          COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301
```

1260

1321

1381

1261

1201

8 8 8

ò

8 8 8

ð

음

ò

å

1020

1081

1021

1141

1440

```
Query Match 99.6%;
Best Local Similarity 99.8%;
Matches 1915; Conservative
                                                                                                                                                                                                                                                           ATURE:
NAME/KEY: CDS
782.4177
                                                                                                                                                                                                                                                 MOLECULE TYPE: CDNA
FILING
                                                                                                                                                                                                                                                            FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1198
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                  1621
                                                                                   1621 TGGCTGCGCAGGAGCCCAGGGGTTGCCGGCCGCAGAGCACACCGTCTGCGTGAG 1680
                                                                                                                                                             1442 FGGCAGGTGTACGGCTTCGTGCGGGCCTGCGCGCCGGCTGGTGCCCCCAGGCCTCTGG 1501
                  1441 TGGCAGGTGTACGGCTTCGTGCGGGCCTGCCCGGCCGGCTGGTGCCCCCAGGCCTCTGG 1500
                                                                                                                TGGCTGCGCAGGAGCCCAGGGGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAG 1681
                                                                                                                                                     GAGATCCTGGCCAAGTTCCTGCACTGGCTGATGAGTGTGTACGTCGTCGAGCTGCTCAGG 1741
                                                                                                                                                                                        1742 TCTTTCTTTTATGTCACGAGACCACGTTTCAAAAGAACAGGCTCTTTTCTACCGGAAG 1801
                                                                                                                                                                                                                              AGTGTCTGGAGCAAGTTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGGTGCAGCTG 1861
                                                                                                                                                                                                                                        GGCTCCAGGCACAACGAACGCCGCTTCCTCAGGAACACCAAGAAGTTCATCTCCTGGGG
                                                                          AAGCATGCCAAGCTCTCGCTGCAGGAGCTGACGTGGAAGATGAGCGTGCGGGACTGCGCT
                                                                                                                                                                                                                                                                                                                                                    Sequence 1, Application US/08911312
Sequence 1, Application US/08911312
Sequence 1, Application US/08911312
GENERAL INFORMATION:
APPLICANT: Cech, Thomas R.
APPLICANT: Chapman, Karen B.
APPLICANT: Chapman, Karen B.
APPLICANT: Moxin, Gregg B.
APPLICANT: Moxin, Gregg B.
APPLICANT: Andrews, William
TITLE OF INVENTION: Telomerase Reverse Transcriptase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                               STREET: Two Embarcadero Center, Eighth Floor CITY: San Francisco STREE California
                                                                                                                                                                                                                                                                                                                            ВР
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 14-AUG-1997
CLASSIFICATION: 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-CCT-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
                                                                                                                                                                                                                                                                                                                 7T 3
US-08-911-312-1 STANDARD; DNA; UNC; 7029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US/08/911,312
FILING DATE: 14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ZIP: 94111-3834
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS_DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                                                                                                                                                                                                                                                                                      XXXXXX
                                                       1501
                                                                          1562
                                                                                            1561
                                                                                                               1622
                                                                                                                                                    1682
                                                                                                                                                                                                                              1802
                                                                                                                                                                                                                                                 1801
                                    1502
                                                                                                                                                                      1681
                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                  셤
                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                            g
                   à
                                   셤
                                                      ö
                                                                        g.
                                                                                            ö
                                                                                                             셤
                                                                                                                                 ò
                                                                                                                                                                      ò
                                                                                                                                                                                                          ö
                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                     ö
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    718 CGCGTCGACGCAGCGCTGCGTCCTGCTGCGACGTGGGAAGCCCTGGCCCCGGCCACCC 777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       63 CGCGATGCCGCGCGCCCCCGCTGCCGAGCCGTGCCTGCTGCTGCGCAGCCACTACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              123 CGAGGTGCTGCCGTGGCCACGTTCGTGCGCCCTGGGGCCCCAGGGCTGGCGGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                778 CGCGAIGCCGCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCAGCCACTACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1018 GCTGGTGGCCCGAGTGCTGCAGAGGCTGTGCGAGCGCGGGCGCGAAGAAGAAGTGCTGGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           838 CGAGGTGCTGCCGCTGGCCACGTTCGTGCGGCGCCTTGGGGCCCCCAGGGCTGGCGGCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        303 GCTGGTGGCCCGAGTGCTGCAGAGGCTGTGCGAGGCGCGGCGCGAAGAAGAACGTGCTTGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    423 GCGCAGCTACCTGCCCAACACGTGACCGACGCACTGCGGGGGAGCGGGGCGTGGGGGGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCATION: 782..4177

OTHER INFORMATION: /product= "human telomerase reverse OTHER INFORMATION: transcriptase (hTRT)"

OTHER INFORMATION: /note= "cDNA contained in plasmid OTHER INFORMATION: pGRN121"

SEQUENCE 7029 BP: 1416 A: 2122 C; 2051 G; 1440 T; 0 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 7029;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 1912; DB 22;
Pred. No. 0.00e+00;
0; Mismatches 3;
                                                                                                                                                                                                                                                                           NAME: Einhorn, Gregory P.
REGISTRATION NUMBER: 38,440
REFERENCE/DOCKET NUMBER: 30,15389-002500US
TELECOMMUNICATION INFORMATION:
                                                        PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/912,951
FILING DATE: 14-AUG-1997
PRIOR APPLICATION NUMBER: US 08/915,503
FILING DATE: 14-AUG-1997
ATTORNEY/AGENT INFORMATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
                                                                                                                                                                                                                                                                                                                                                    TELEPHONE: (415) 576-0200
TELEFAX: (415) 576-0200
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 7029 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
```

2457

2517

2577

S

```
TGTCTGGAGCAAGTTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGGTGCAGCTGCG
                                                                                                                                                                                  TGTCTGGAGCAAGTTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGGTGCAGCTGCG
  GCATGCCAAGCTCTCGCTGCAGGAGCTGACGTGGAAGATGAGCGTGCGGGACTGCGCTTG
                                                                                                               TTTCTTTTATGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAG
                        GCTGCGCAGGAGCCCAAGGGGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGA
                                                                    GATCCTGGCCAAGTTCCTGCACTGGCTGATGAGTGTGTACGTCGAGGTGCTCAGGTC
                                                                                                                                                                                                                                                                                                         Sequence 4, Application US/08912951
C Sequence 4, Application US/08912951
C GENERAL INFORMATION
C SPECIANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Chapman, Karen B.
APPLICANT: Morin, Gregg B.
APPLICANT: Morin, Gregg B.
APPLICANT: Andrews, William H.
C TITLE OF INVENTION: HUMAN TELOMERASE CATALYTIC SUBUNIT: DIA
C TITLE OF INVENTION: THERAPEGTIC METHODS
C NUMBER OF SEQUENCES: 335
C CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                 COMPUTER READBLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Crew
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE: Townsend and Townsend and Crew
STREET: Two Embarcadero Center, 8th Floor
CIIY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                            US-08-912-951-4 STANDARD; DNA; UNC; 3855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          08/854,050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       08/851,843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  08/846,017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               08/844,419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     America
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US/08/912,95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY: United States of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 00
FILING DATE: 09-MAY-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08
FILING DATE: 06-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US 08 FILING DATE: 18-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US 0:
FILING DATE: 25-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION DATA:
APPLICATION NUMBER: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA: APPLICATION NUMBER: U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 14 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94111
                                                                                                                                                                                                                                                                                        XXXXXX
                                                                                                                                                                                                                              1863
  1563
                                            1623
                                                                   2398
                                                                                         1683
                                                                                                                                     1743
                                                                                                                                                            2518
                                                                                                                                                                                 1803
                                                                                                                                                                                                       2578
                        2338
                                                                                                               2458
                                                                                                                                                                                                                                                                 RESULT
                                                                 g
                                                                                        ò
                                                                                                             셤
                                                                                                                                    ò
                                                                                                                                                         g
                                                                                                                                                                                 ò
                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                      1497
                                                                                                                                                                                                                                                                                                                                                        1737
                                                                                                                                                                                                                                                                                                                                                                                                                                                          2097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCATGCCAAGCTCTCGCTGCAGGAGCTGACGTGGAAGATGAGCGTGCGGGACTGCGCTTG 2337
                                                                                                                         1437
                                                                                                                                                                                                                 GCGTGGCGCTGCCCCTGAGCCGGAGCGCCCGTTGGGCAGGGGTCCTGGGCCCACCC 1557
                                                                                                                                                                                                                                                               CGAAGAAGCCACCTCTTTGGAGGGTGCGCTCTCTGGCACGCGCCACTCCCATCCGT 1677
                                                                                                                                                                                                                                                                                                                                                                                                   GCCTTGTCCCCCGGTGTACGCCGAGACCAAGCACTTCTTCTACTCCTCAGGCGACAAGGA 1797
                                                                                                                                                                                                                                                                                                                                                                                                                          GCCTTGTCCCCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGA 1082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTCGTGGAGACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTT 1202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGAGGAGGACACAGACCCCCGTCGCTGGTGCAGCTGCTCCGCCAGCACAGCAGCACCCCTG 2157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCAGGTGTACGGCTTCGTGCGGGCCTTGCCTGCGCGGGTGGTGCCCCCAGGCCTCTGGGG 2217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTCCAGGCACAACGAACGCCGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAA 2277
                                                                                                                                                                                                                                        842
                                                                                                                                     GGGCCGCCAGCACCACGGGGCCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACAC
                                                                                                                                                                                                                                                                                                                                                                   GCTCGTGGAGACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCCCGCCTGCCCCAGCGCTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CACCCCAGCAGCCGGTGTCTGTGCCCGGGAGAAGCCCCCAGGGCTCTGTGGCGGCCCCCGA
                                                                            CGCTGCCACTCAGGCCCGGCCCCGCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATG
                                                                                                                         CGAACGGGCCTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCCCC
                                                                                                                                                                      GGGTGCGAGGAGGCGCGGGGCCAGTGCCAAGTCTGCCGTTGCCCAAGAGGCCCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                              GCAGCTGCGCCCCTCCTTCCTACTCAGCTCTGAGGCCCAGCCTGACTGGCGCTCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCACGCGCAGTGCCCCTACGGGGTGCTCCTCAAGACGCACTGCCCGCTGCGAGCTGCGGT
                                 TGTGCTGGTGGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       543
                                                                            1318
                                                                                                                        1378
                                                                                                                                                                     1438
                                                                                                                                                                                                                1498
                                                                                                                                                                                                                                                               1558
                                                                                                                                                                                                                                                                                                         1618
                                                                                                                                                                                                                                                                                                                                                      1678
                                                                                                                                                                                                                                                                                                                                                                                                   1738
                                                                                                                                                                                                                                                                                                                                                                                                                                              1798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2278
           483
                                                                                                   603
                                                                                                                                               663
                                                                                                                                                                                          723
                                                                                                                                                                                                                                       783
                                                                                                                                                                                                                                                                                   843
                                                                                                                                                                                                                                                                                                                                903
                                                                                                                                                                                                                                                                                                                                                                             963
                                                                                                                                                                                                                                                                                                                                                                                                                         1023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                           윱
                                                                                                                       g
                                                                                                                                                                   g
                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                     쉽
                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                 g
                                                      ò
                                                                                                   ö
                                                                                                                                             ò
                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                         ά
                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                           å
```

DIAGNOSTIC AND

ဖ

```
1092
                                                                                                                                                                                                                                                                                                                                                                                                                        1332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1452
                                                                                                                                                                                                                                        1021
                                                                                                                                                                                                                                                         1032
                                                                                                                                                                                                                                                                                                        1141
                                                                                                                                                                                                                                                                                                                         1152
                                                                                                                                                                                                                                                                                                                                        1201
                                                                                                                                                                                                                                                                                                                                                        1212
                                                                                                                                                                                                                                                                                                                                                                         1261
                                                                                                                                                                                                                                                                                                                                                                                        1272
                                                                                                                                                                                                                                                                                                                                                                                                                                        1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                        1392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1632
         601
                       612
                                        661
                                                        672
                                                                        721
                                                                                         732
                                                                                                        781
                                                                                                                        792
                                                                                                                                        841
                                                                                                                                                        852
                                                                                                                                                                        901
                                                                                                                                                                                        912
                                                                                                                                                                                                        196
                                                                                                                                                                                                                        972
                                                                                                                                                                                                                                                                          1081
                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                       ò
                                        g
                                                        ò
                                                                       셤
                                                                                                      g
                                                                                                                        à
                                                                                                                                        g
                                                                                                                                                                       a
                                                                                                                                                                                        à
                                                                                                                                                                                                        셤
                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                         ò
                                                                                                                                                        ò
                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                              540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                900
                                                                                                                                                                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                                                                                                                                                                 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCTGCCCAACACACGGTGACGCACTGCGGGGGAGCGGGGCGTGGGGGGCTGCTGCTGCG 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               491
                                                                                                                                                                                                                                                                                                                 GCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCAGCCACTACCGCGAGGTGCT 120
                                                                                                                                                                                                                                                                                                                                131
                                                                                                                                                                                                                                                                                                                                                                                                251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         551
                                                                                                                                                                                                                                                                                1 GCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCCCGCGGATGCC 60
                                                                                                                                                                                                                                                                                         12 GCAGCGCTGCGTCCTGCTGCGCCCACCTGGCCCTGGCCCCGGCCACCCCCGCGATGCC 71
                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                          GCTGCTGGACGGGGCCCGGGGGCCCCCCGGAGGCCTTCACCACCAGGGTGCGCAGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCTCGGCGCTGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGACCCGGCGCGTTTCCGCGCGCTGGTGGCCTGGTGTGCGTGCCTGGGACGC
                                                                                                                                                                                                                                                                                                                                                                                                               CCGAGTGCTGCAGAGGCTGTGCGAGCGCGCGCGAAGAACGTGCTGGCCTTCGGCTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCGCGTGGCCGACGACGTGCTGGTTCACCTGCTGGCACGCTGCGCGCTCTTTGTGCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note= "nucleic acid sequence with an open reading frame encoding a delta-182
                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                Length 3855;
                                                                                                                                                                                                                                                                0; Indels
                                                                                                                                                                                                               /product= "delta-182 variant
polypeptide"
1300 C; 1226 G; 678 T; 0 OTHER.
                                                                                                                                                                                                                                                Score 1909; DB 22;
Pred. No. 0.00e+00;
                                             REFERENCE/DOCKET NUMBER: 015389-002600US TELECOMMUNICATION INFORMATION: TELEPHONE: (415) 576-0200
TELEPHONE: (415) 576-0300
INFORMATION FOR SEQ ID NO: 4: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                 variant polypeptide"
                                                                                                                                                                                                                                                                0; Mismatches
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-OCT-1996
                                        36,429
               CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Apple, Randolph T.
REGISTRATION NUMBER: 36,4
                                                                                              LENGTH: 3855 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                               Query Match
Best Local Similarity 100.0%;
Matches 1909; Conservative
                                                                                                               STRANDEDNESS: single
                                                                                                                                                                                                       LOCATION: 56..2479
OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                                                                SEQUENCE 3855 BP; 651 A;
                                                                                                                                                                OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                        TOPOLOGY: linear MOLECULE TYPE: CDNA
                                                                                                                                               NAME/KEY: -
LOCATION: 1..3855
                                                                                                                                                                                        FEATURE:
NAME/KEY: CDS
                                                                                                                                                                                                                                                                                                                                                                                                                               252
                                                                                                                                                                                                                                                                                                                                                                                                                                                               312
                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                              192
                                                                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               552
                                                                                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                              g. ö
                                                                                                                                                                                                                                                                                                                                                                                                                               å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
```

```
1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1321 AGCCGGTGTCTGTGCCCCGGGAGAAGCCCCAGGGCTCTGTGGCGGCGCCCCCGAGGAGGAGGA 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     720
                                                                                                                                      780
                                                                                                                                                                                                          840
                                                                                                                                                                                                                                                                               900
                                                                                                                                                                                                                                                                                                                                                  960
                                                                                                                                                                                                                                                                                                                                                                                     971
                              671
                                                                                                    731
                                                                                                                                                                       791
                                                                                                                                                                                                                                           851
                                                                                                                                                                                                                                                                                                                911
                                                                                                                                                                                                                                                                                                                                                 GCACCACGCGCCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                          CCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCCTCCTTCCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CACAGACCCCCGTCGCTGGTGCAGCTGCTCCGCCAGCACAGCAGCACCGCTGGCAGGTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCTGGGCCTGCCAGCCCCGGGTGCGAG
                                                                                                                                                                                                                              CCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCCTCCTTCCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCTCTCGCTGCAGGAGCTGACGTGGAAGATGAGCGTGCGGGACTGCGCTTGGCTGCGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAGCCCAGGGGTTGGCTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGGC
TCAGGCCCGGCCCCCCCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGGC
                                  TCAGGCCCGGCCCCCCCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGGC
                                                                                                                                      GAGGCGCGGGGGCAGTGCCAGCCGAAGTCTGCCGTTGCCCAAGAGGCCCAGGCGTGGCGC
                                                                                                                                                                                                            TGCCCCTGAGCCGGAGCGGACGCCCGTTGGGCAGGGGTCCTGGGCCCACCCGGGCAGGAC
                                                                                                                                                                                                                                                                               GCGTGGACCGAGTGACCGTGGTTTCTGTGTGTGTCTCTCCCGCCAGACCCGCCGAAGAAGC
                                                                                                                                                                                                                                                                                                 GCGTGGACCGAGTGATTTCTGTGTGGTGTCACCTGCCAGACCCGCCGAAGAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCCCAGCGCTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGCCCCTACGGGGTGCTCCTCAAGACGCACTGCCCGCTGCGAGCTGCGGTCACCCCAGC
```

```
552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               සු
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                        1800
                                                                                                                                               CAAGTTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGGAGCTGTC 1860
1681 CAAGTICCIGCACIGGCIGAIGAGIGIGIACGICGICGAGCIGCICAGGICITICITITA 1740
                   1812 CAAGTTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGGAGCTGC 1871
                                                                                           TGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAGTGTCTGGAG
                                                                                                                                                                                                                                                                                                                                                                           Sequence 18, Application US/08911312
Sequence 18, Application US/08911312
Sequence 18, Application US/08911312
GENERAL INFORMATION:
APPLICANT: Cech, Thomas R.
APPLICANT: Nakamura, Toru
APPLICANT: Chapman, Karen B.
APPLICANT: Month, Gregg B.
APPLICANT: Harley, Calvin B.
APPLICANT: Andrews, William
TITLE OF INVENTION: Telomerase Reverse Transcriptase.
                                                                                                                                                                                                                  CURRENT APPLICATION DATA:

CURRENT ARPLICATION DATA:

APPLICATION NUMBER:

FILING DATE:

FILING DATE:

APPLICATION NUMBER:

FILING DATE:

APPLICATION NUMBER:

APPLICATION NUMBER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADDRESSEE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, Eighth Floor
CITX: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                              JT 5
US-08-911-312-18 STANDARD; DNA; UNC; 3855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US 08/854,050 FILING DATE: 09-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US 08/915,503
FILING DATE: 14-AUG-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US 08/912,951
FILING DATE: 14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ZIP: 94111-3834
COMPUTER READABLE FORM:
WEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: Einhorn, Gregory P. REGISTRATION NUMBER: 38,440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 09-MAY-1 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 14-AUG-7
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                                                                                                                                                                                                                                    XXXXX
                                                                    1741
                                                                                                                                             1801
                                                                                                                                                                                                                                                                                                              RESULT
g
                                                                  g
                                                                                                         ö
                                                                                                                                           g
                                                                                                                                                                                ö
                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                 õ
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121 GCCGCTGGCCACGTTCGTGCGGCGCCTGGGGCCCCAGGGCTGGCGGCTGGTGCAGCGCGG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 72 GCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCCACTACCGCGAGGTGCT 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61 GCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCTGCTGCGCAGCCACTACCGCGAGGTGCT 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             721 GAGGCGCGGGGCAGTGCCAGCCGAAGTCTGCCGTTGCCCAAGAGGCCCAGGCGTGGCGC 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12 GCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCGGCCACCCCGGGGATGCC 71
                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                         1 GCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGGCCACCCCCGCGATGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        192 GGACCCGGCGGCTTTCCGCGCGCTGGTGGCCCAGTGTGCGTGTGCCTGGGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301 CCGAGTGCTGCAGAGGCTGTGCGAGCGCGCGCGCGAAGAACGTGCTGGCCTTCGGCTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   112 CCGAGTGCTGCAGAGGCTGTGCGAGCGCGCGCGAACGTGCTGGCCTTCGCTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     541 GGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCTCGGCGCTGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         601 TCAGGCCCGGCCCCCGCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCCCCGGGTGCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGCGTGGGCGACGTGCTGGTTCACCTGCTGGCACGCTGCGCGCTCTTTGTGCTGGT
                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                              Score 1909; DB 22; Length 3855;
Pred. No. 0.00e+00;
0; Mismatches 0; Indels 0;
                                                                                                                                                                                                         NAME/KEY: CDS
LOCATION: 56..2476
OTHER INFORMATION: /product= "hTRT"
OTHER INFORMATION: /note= "clone #712562"
SEQUENCE 3855 BP; 651 A; 1300 C; 1226 G; 678 T; 0 OTHER.
REFERENCE/DOCKET NUMBER: 015389-002500US
         TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
INFORMATION FOR SEQ ID NO: 18:
SEQUENCE CHARACTERISTICS:
LENGTH: 3855 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLEGULE TYPE: CDNA
FEATURE:
                                                                                                                                                                                                                                                                                                                  Ouery Match 99.4%;
Best Local Similarity 100.0%;
                                                                                                                                                                                                                                                                                                                                                   Matches 1909; Conservative
```

```
APPLICATION NUMBER: US/08/912,951
FILING DATE: 14-AUG-1997
CLASSIFICATION: 435
                                                 US-08-912-951-1 STANDARD; DNA; UNC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER: 015:
TELECOMMUNICATION INFORMATION:
TELEFONE: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 36,429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 4015 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                               COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE: CDNA FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                      94111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY:
                                         9
                                                           XXXXXX
                                         RESULT
셤
                                                  1140
                                                                                                                                                                                                                                               1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1680
                                                                                                           1020
                                                                                                                                            1080
                                                                                                                                                                                                              1200
                                                                                                                                                                                                                              1211
                                                                                                                                                                                                                                                                                1320
                                                                                                                                                                                                                                                                                                 1331
                                                                                                                                                                                                                                                                                                                                                                  1451
                                                                                                                                                                                                                                                                                                                                                                                                                   1620
                                                                                                                            1031
                                                                                                                                                            1091
                                                                                                                                                                                              1151
                                                                                                                                                                                                                                                        1631
                                                                                                                                                                                                                                                                                                                 AGCCGGTGTCTGTGCCCCGGGAGAAGCCCCAGGGCTCTGTGGCGGCCCCCCGAGGAGGAGGA 1380
                                                                                                                                                                                                                                                                                                                         CACAGACCCCCGTCGCTGGTGCAGCTGCTCCGCCAGCAGCAGCCCCTGGCAGGTGTA 1440
                                                                                                                                                                                                                                                                                                                                                                                   CGGCTTCGTGCGGGCCTGCTGCGCGGCTGGTGCCCCCAGGCCTCTGGGGGCTCCAGGCA 1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1692 CAAGTICCTGCACTGGCTGATGAGTGTGTACGTCGTCGAGCTGCTCAGGTCTTTTTA 1751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1741 IGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAGTGTCTGGAG 1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1152 TGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAGTGTCTGGAG 1811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  851
                                                                                                                                                                                                                                                                                                                                                                                                                                                   1032 CCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTACTCCTCAGGCGACAAGGAGCAGCTGCG
                                                                                                                                                                             GCCCTCCTTCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGGA
                                                                                                                                                                                                                      GAGCCCAGGGGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGGC
                GCGTGGACCGAGTGACCGTGGTTTCTGTGTGTGTCACCTGCCAGACCCGCCGAAGAAGC
                                                 CACCTCTTTGGAGGGTGCGCTCTCTGGCACGCGCCACTCCCATCCGTGGGCCGCCA
                                                                                                          GCACCACGCGGGCCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTCC
                                                                                                                  CCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCG
                                                                                                                                                                                              GCCCTCCTTCCTACTCAGCTCTCTGAGGCCCCAGCCTGACTGGCGCTCGGAGGCTCGTGGA
                                                                                                                                                                                                                                              GCCCCAGCGCTACTGGCAAATGCGGCCCCTGTTCTGGAGCTGCTTGGGAACCACGCGCA
                                                                                                                                                                                                                                                                                GTGCCCCTACGGGGTGCTCCTCAAGACGCACTGCCCGCTGCGAGCTGCGGTCACCCCAGC
                                                                                                                                                                                                                                                                                                                                                                                           1632 GAGCCCAGGGGTTGGCTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAAGTIGCAAAGCATIGGAAICAGACAGCACTIGAAGAGGGTGCAGCIGCGGGAGCIGIC
       TGCCCCTGAGCCGGAGCGGACGCCCGTTGGGCAGGGGTCCTGGGCCCCACCCGGGCAGGAC
                                                                                                                                                                                                             GACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                    1512
                                                                                                                                           1021
                                                                                                                                                                             1081
                                                                                                                                                                                             1092
                                                                                                                                                                                                                             1152
                                                                                                                                                                                                                                                              1212
                                                                                                                                                                                                                                                                               1261
                                                                                                                                                                                                                                                                                                1272
                                                                                                                                                                                                                                                                                                                1321
                                                                                                                                                                                                                                                                                                                                1332
                                                                                                                                                                                                                                                                                                                                                 1381
                                                                                                                                                                                                                                                                                                                                                                  1392
                                                                                                                                                                                                                                                                                                                                                                                   1441
                                                                                                                                                                                                                                                                                                                                                                                                   1452
                                                                                                                                                                                                                                                                                                                                                                                                                   1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1812
       781
                                        841
                                                        852
                                                                         901
                                                                                          912
                                                                                                          196
                                                                                                                           972
                                                                                                                                                                                                             1141
                                                                                                                                                                                                                                              1201
                                                                                                                                                                          g
                                                                                                                                                                                                          g
                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                        ò
                                      셤
                                                        ò
                                                                        셤
                                                                                         á
                                                                                                        g
                                                                                                                     · ö
                                                                                                                                          요
                                                                                                                                                         õ
                                                                                                                                                                                            ò
                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
```

```
Sequence 1, Application US/08912951
Sequence 2, Applicant Nakamina, Toru Applicant Morin, Gregg B.
APPLICANT: Morin, Gregg B.
APPLICANT: Andrews, William H.
CAPPLICANT: ADDRESS: 335
CORRESPONDENCE ADDRESS:
CAPPLICANT: ADDRESS:
CAPPLICA
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOWITRY: United and Townsend and Crew CITY: San Francisco STATE: California 2.10.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     015389-002600US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
APPLICATION UNBER: US 08/724,643
FILING DATE: 01-0CT-1996
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
AMME: APPLE, Randolph T.
REGISTRATION NUMBER: 36,429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
ELLING DATE: 25-APR-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION: 435
```

σ

```
1, Application US/09052919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-052-919-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1872
               912
                                                                                              1021
                                                                                                                         1032
                                                                                                                                                                              1092
                                                                                                                                                                                                          1141
                                                                                                                                                                                                                                    1152
                                                                                                                                                                                                                                                               1201
                                                                                                                                                                                                                                                                                         1212
                                                                                                                                                                                                                                                                                                                    1261
                                                                                                                                                                                                                                                                                                                                              1272
                                                                                                                                                                                                                                                                                                                                                                         1321
                                                                                                                                                                                                                                                                                                                                                                                                    1332
                                                                                                                                                                                                                                                                                                                                                                                                                                                         1392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1861
                                                                                                                                                    1081
                                                                                                                                                                                                                                                                                                                                                                                                                               1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BARB
                                   g
                                                                                            ద
                                                                                                                                                셤
                                                                                                                                                                              ö
                                                                                                                                                                                                        유
                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                          요
                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
               8
                                                                ò
                                                                                                                         à
                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         840
                                                                                                                                                                                                                   180
                                                                                                                                                                                                                                                                                                                                                                                       300
                                                                                                                                                                                                                                                                                                                                                                                                                                            360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     960
                                                                                                                                                                                                                                                                                                      191
                                                                                                                                                                                                                                                                                                                                                           251
                                                                                                                                                                                                                                                                                                                                                                                                                 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            791
                                                                                                                                                                 9
                                                                                                                                                                                         71
                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                         CTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCTGGGCCTGCCAGCCCCGGGTGCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCTGCCCAACACGTGACCGACGCACTGCGGGGGAGCGGGGCGTGGGGGCTGCTGCTGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCGGCCACCCCCGCGATGCC
                                                                                                                                                                                         GCAGCGCTGCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGGCCACCCCGGGATGCC
                                                                                                                                                                                                                                                                                                                                GCIGCIGGACGGGGCCCGCGGGGCCCCCCGAGGCCTTCACCACCAGCGTGCGCAGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGCGTGGGCGACGACGTGCTGGTTCACCTGCTGGCACGCTGCGCGCTCTTTGTGCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCTGGGCCTGCCAGCCCCGGGTGCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAGGCGCGCGCGCAGTCCAGCCGAAGTCTGCCCTTGCCCAAGAGGCCCAGGCGTGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGCCCCTGAGCCGGAGCGGACGCCCGTTGGGCAGGGGTCCTGGGCCCCACCCGGGCAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  901 CACCTCTTTGGAGGGTGCGCTCTCTGGCACGCGCCACTCCCATCCGTGGGCCGCCA
                                                                                                                                                                                                                                                                                                                                                                                      ACGGCCGCCCCCCCCCCCCTCCTTCCGCCAGGTGTCCTGCTGCAGGAGCTGGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGTGGACCGAGTGACCGTGGTTTCTGTGTGTGTCACCTGCCAGACCCGCCGAAGAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGAGTGCTGCAGGCTGTGCGAGCGCGCGCGAAGAACGTGCTGGCCTTCGGCTTCGC
                                          reverse
lytic protein
                                                                                                                                      ö
                         /product= "hTRT"
/note= "human telomerase revers
transcriptase (hTRT) catalytic
                                                                                                                                      Indels
                                                                                                            Length
                                                                                 0
                                                                                                         Score 1909; DB 22;
Pred. No. 0.00e+00;
0; Mismatches 0;
                                                                                C; 1275 G; 714 T;
                                                                    component"
1363 C; 12
                                                                                                           Query Match 99.4%;
Best Local Similarity 100.0%;
Matches 1909; Conservative
            LOCATION: 56..3454
OTHER INFORMATION: //
OTHER INFORMATION: //
OTHER INFORMATION: COTHER INFORMATION: COTH
 NAME/KEY:
                                                                                                                                                                ч
                                                                                                                                                                                         12
                                                                                                                                                                                                                                              72
                                                                                                                                                                                                                                                                                                    132
                                                                                                                                                                                                                                                                                                                                                           192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 612
                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                252
                                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ογ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
88888888
                                                                                                                                                                                         ò
                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                             ପ୍ ଧ
                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
```

```
1860
                                     1020
                                                           1031
                                                                                    1080
                                                                                                                                1140
                                                                                                                                                                                1200
                                                                                                                                                                                                      1211
                                                                                                                                                                                                                              1260
                                                                                                                                                                                                                                                     1271
                                                                                                                                                                                                                                                                             1320
                                                                                                                                                                                                                                                                                                    1331
                                                                                                                                                                                                                                                                                                                           1380
                                                                                                                                                                                                                                                                                                                                                 1391
                                                                                                                                                                                                                                                                                                                                                                        1440
                                                                                                                                                                                                                                                                                                                                                                                                1451
                                                                                                                                                                                                                                                                                                                                                                                                                        1500
                                                                                                                                                                                                                                                                                                                                                                                                                                              1511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1871
                                                                                                         1091
                                                                                                                                                       1151
             971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGGCTTCGTGCGGGCCTGCCTGCGCCGGCTGGTGCCCCCAGGCCTCTGGGGCTCCAGGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1752 TGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAGTGTCTGGAG
GCCCCAGCGCTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCA
                                                                                                                                                                                                                                                                                        CAAGIICCIGCACIGGCIGAIGAGIGIGIACGICGICGAGCIGCICAGGICTIICIIIIA
                                                                                   CCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCG
                                                                                                          CCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCG
                                                                                                                                                                                                                              GCCCCAGCGCTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCA
                                                                                                                                                                                                                                                                             GTGCCCCTACGGGGTGCTCCTCAAGACGCACTGCCCGCTGCGAGCTGCGGGTCACCCCAGC
                                                                                                                                                                                                                                                                                                                                                                        CACAGACCCCCGTCGCTGGTGCTGCTCCGCCAGCACCAGCAGCCCCTGGCAGGTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                             CAACGAACGCCGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTCTCGCTGCAGGAGCTGACGTGGAAGATGAGCGTGCGGGACTGCGCTTGGCTGCGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAGCCCAGGGGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGGC
                                                                                                                                GCCCTCCTTCCTACTCAGCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGGA
                                                                                                                                                                                GACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DNA;
```

ö

0; Gaps

Length 4015; 0; Indels

```
61 GCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCAGCCACTACCGCGAGGTGCT 120
                                                                                                                                                                                                                                                                                          121 GCCGCTGGCCACGTTCGTGCGGCGCCTTGGGGCCCCAGGGCTGGCGGCTGGTGCAGCGCGG 180
                                                                                                                                                                                                                                                                                                                                                                                   1 GCAGCGCTGCTGCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCCACCCCCGGCGATGCC 60
                                                                                                                                                                                                                                     12 GCAGCGCTGCGTCCTGCTGCGCACGCGCGAAGCCCTGGCCCCGGCCACCCCCGCGATGCC 71
                                                                                                                                                                                                                                                                                                                                              841 GCGTGGACCGAGTGACCGTGGTTTTCTGTGTGTGTCACCTGCCAGACCCGCCGAAGAAGC
                                                                                                                                                                                                                                                                                                                                                                                                 541 GGCTCCCAGCTGCGCCTACCAGGTGTGCGGCCGCCGCTGTACCAGCTCGGCGCTGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            601 TCAGGCCCGGCCCCCGCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCCCCGGGTGCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGCCCCTGAGCCGGAGCGGACGCCCGTTGGGCAGGGGTCCTGGGCCCCACCCGGGCAGGAC
                                                                                    NAME/KEY: CDS
LOCATION: 56.3454
COTHER INFORMATION: /product= "human telomerase reverse
OTHER INFORMATION: transcriptase (hTRT)"
SEQUENCE 4015 BP; 663 A; 1363 C; 1275 G; 714 T; 0 OTHER.
                                                                                                                                                                 Score 1909; DB 24;
Pred. No. 0.00e+00;
0; Mismatches 0;
        4015 base pairs
                                                                                                                                                                   Query Match 99.4%;
Best Local Similarity 100.0%;
Matches 1909; Conservative
                    TYPE: nucleic acid STRANDEDNESS: single
                                          MOLECULE TYPE: CDNA FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       781
                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
         88888888888888
                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                       엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                         ò
Sequence 1, Application US/09052919
GENERAL INFORMATION:
APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Chapman, Karen B.
APPLICANT: Chapman, Karen B.
APPLICANT: Harley, Calvin B.
APPLICANT: Andrews, William H.
TITLE OF INVENTION: Antisense Compositions for Detecting and TITLE OF INVENTION: Inhibiting Telomerase Reverse Transcriptase CORRESPONDENCES: 72
CORRESPONDENCES: 72
CORRESPONDENCES: 72
CORRESPONDENCES: 72
CORRESPONDENCES: 72
CORRESPONDENCES: 72
                                                                                                                                                                                                                                                                                                            SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/052,919 FILING DATE: 31-MAR-1998 CLASSIFICATION: 435
                                                                                                                                                                              ADDRESSEE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, Eighth Floor
CITY: San Francisco
STATE: California
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REGISTRATION NUMBER: 42,058
REBERBENG-ZPOCKET NUMBER: 015389-003600US
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
TELEPAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: WO PCT/US97/17618 FILING DATE: 01-OCT-1997 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: WO PCI/US97/17885 FILING DATE: 01-OCT-1997 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996
PRIOR APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
PRIOR APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
PRIOR APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
PRIOR APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
PRIOR APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
PRIOR APPLICATION NUMBER: US 08/911,312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 14-AUG-1997

PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/912,951

FILING DATE: 14-AUG-1997

PRIOR APPLICATION NUMBER: US 08/915,503

FILING DATE: 14-AUG-1997

PRIOR APPLICATION NUMBER: US 08/915,503

FILING DATE: 14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US 08/974,549
FILING DATE: 19-NOV-1997
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US 08/974,584
FILING DATE: 19-NOV-1997
                                                                                                                                                                                                                                                                                     COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME: Parent, Annette S. REGISTRATION NUMBER: 42,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                    COUNTRY: USA
ZIP: 94111-3834
```

300

251

191

360

371

420

431

480

491

540 551 900 720

99

671

611

780

731

BÞ

```
US-08-854-050-224 STANDARD; DNA; UNC;
      XXXXXX
 GACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCGCCT 1200
                                                                                                                                                                            AGCCGGTGTCTGTGCCCCGGAGAAGCCCCCAGGGCTCTGTGGCGGCCCCCCGAGGAGGAGGA 1380
                                                                                                                                                                                                  CACAGACCCCGTCGCCTGGTGCAGCTGCTCCGCCAGCACAGCAGCCCCTGGCAGGTGTA 1440
                                                                                                                                                                                                                        CGCCTTCGTGCGGGCCTGCCTGCTGGTGCCCCCAGGCCTCTGGGGGCTCCAGGCA 1500
                                                                                                                                                                                                                              CAACGAACGCCCCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAA 1560
                                                                                                                                                                                                                                                     CAAGTIGCAAAGCATIGGAATCAGACAGCACTIGAAGAGGGIGCAGCIGCGGGAGCIGIC 1860
                                                                                                                                                                                                              CACAGACCCCCGTCGCTGGTGCAGCTGCTCCGCCAGCACAGCAGCCCCTGGCAGGTGTA 1451
                GCCCTCCTTCCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGGA
                                                                                                                                                     CAAGTICCIGCACTGGTGATGAGTGTGTACGTCGAGCTGCTCAGGTCTTTTTA
                                                                                                                                                                                                                                                                                                                        TGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTTCTACCGGAAGAGTGTCTGGAG
                                                                                                                                                                                                                                                                                                                                                                    GCGTGGACCGAGTGACCGTGTTTCTGTGTGTGTCACCTGCCAGACCCGCCGAAGAAGC
                                       GCACCACGGGGCCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTCC
                                                             CCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGGGGGGAGCAGCTGCG
                                                                                                               GCTCTCGCTGCAGGAGCTGACGTGGAAGATGAGCGTGCGGGACTGCGCTTGGCTGCGCAG
1021
                                                                       1032
                                                                                                         1141
                                                                                                                    1152
                                                                                                                                          1212
                                                                                                                                                                 1272
                                                                                                                                                                                      1332
                                                                                                                                                                                                             1392
                                                                                                                                                                                                                        1441
                                                                                                                                                                                                                                   1452
                                                                                                                                                                                                                                              1501
                                                                                                                                                                                                                                                         1512
                                                                                                                                                                                                                                                                     1561
                                                                                                                                                                                                                                                                                                                             1692
                                                                                                                                                                                                                                                                                                                                                              1801
                                                                                                                                                                                                                                                                                                                                                                          1812
     852
                           912
                                      961
                                                                                   1081
                                                                                             1092
                                                                                                                               1201
                                                                                                                                                      1261
                                                                                                                                                                            1321
                                                                                                                                                                                                  1381
                                                                                                                                                                                                                                                                                1572
                                                                                                                                                                                                                                                                                           1621
                                                                                                                                                                                                                                                                                                      1632
                                                                                                                                                                                                                                                                                                                 1681
                                                                                                                                                                                                                                                                                                                                        1741
                                                                                                                                                                                                                                                                                                                                                   1752
                                                                                                                                                                                                                                                                                                                                                                                    1861
                                                                                                                                                                                                                                                                                                                                                                                                1872
                901
                                      셤
                                                                                                      셤
                                                                                                                               용
                                                                                                                                          ò
                                                                                                                                                    g
                                                                                                                                                                ò
                                                                                                                                                                           g
                                                                                                                                                                                      ò
                                                                                                                                                                                                ద
                                                                                                                                                                                                             ò
                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                             원
                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                  쉱
                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                       요
                                                                                                                                                                                                                                                                                                                                                              合
                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                    셤
      ô
                           ò
                                                 à
                                                                       ò
                                                                                 a
                                                                                             ò
                                                                                                                    ò
                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                            ď
                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                ò
```

/note= "human telomerase reverse transcriptase (hTRT) catalytic protein Length 4015; NAME/KEY: CDS
LOCATION: 56.3454
COTHER INFORMATION: /product= "htrp"
OTHER INFORMATION: /note= "human telomerase revers
OTHER INFORMATION: transcriptase (htr) catalytic
OTHER INFORMATION: component"
SEQUENCE 4015 BP: 663 A: 1363 C: 1275 G; 714 T; 0 OTHER. APPLICANT: Cech, Thomas R.
APPLICANT: Cech, Thomas R.
APPLICANT: Cech, Thomas R.
APPLICANT: Nakamura, Toru
APPLICANT: Chapman, Karen B.
APPLICANT: Morin, Gregg B.
APPLICANT: Morin, Gregg B.
APPLICANT: Morin, Gregg B.
APPLICANT: Andrews, William H.
TITLE OF INVENTION: Novel Telomerase
NUMBER OF SEQUENCES: 225
CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, 8th Floor
CITY: San Francisco
STAFE: California
COUNTRY: United States of America COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPPRATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
RPPLICATION NUMBER: US/08/854,050
FILING DATE: 09-MAY-1997
CLASSIFICATION: 536 NAME: Apple, Randolph T.
REGISTRATION NUMBER: 36,429
REFENCE/DOCKET NUMBER: 015389-002930US
TELEPHONE: (415) 576-0200
TELEPHONE: (415) 576-0300
INFORMATION FOR SEQ ID NO: 224:
SEQUENCE CHARACTERISTICS:
LENGTH: 4015 base pairs PRICE APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
CLASSIFICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
CLASSIFICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION: 536
PRICE APPLICATION: 536
PRICE APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996 Sequence 224, Application US/08854050 Sequence 224, Application US/08854050 GENERAL INFORMATION:
APPLICANT: Cech, Thomas R.
APPLICANT: Linguer, Joachim CLASSIFICATION: 536 ATTORNEY/AGENT INFORMATION: STRANDEDNESS: single nucleic acid MOLECULE TYPE: CDNA linear 94111 TOPOLOGY:

ö

Gaps

ö

9 60 AG	ογ.		g Ko	og og	g K	g & 1	gg &	9 %	a v	Q Q	g &	g &	g &	RESUL ID (	점심앙앙	8888	88888
1 GCAGCGCTGCGTCCTG 	ol General Control of the Control of	121 GCCGCTGGCCACGTTCGTGCGGCCCTGGGGCCCCAGGCTGGCGCTGGTGCAGCGCGG 180	181 GGACCCGGCGCTTTCCGCGCCTGGTGCCCTGGTGTGCGTGC	241 ACGCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	301 CCGAGTGCTGCAGAGGCTGTGCGAGGCGCGCGAAGAACGTGCTGGCCTTCGGCTTCGC 360	361 GCTGCTGGACGGGCCCGCGGGGCCCCCCGAGGCCTTCACCACGCGTGCGCACACACA	421 CCTGCCCAACACGGTGACCGACTGCGGGGGGGGGGGGGG	481 CCGCGTGGGCGACGTGCTGGTTCACCTGCTGGCACGCTGCGCGCTCTTTGTGCTGGT 540	541 GGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCTGTACCAGCTCGGGGTGCCAC 600	601 TCAGGCCCGGCCCCCCCACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGGC 660	661 CIGGAACCATAGCGTCAGGGAGGCGGGGTCCCCCTGGGCCTGCCAGCCCCGGGTGCGAG 720	721 GAGGCGGGGGCAGTGCCAAGTCTGCCGTTGCCCAAGAGGCCCAGGCGTGGCGC 780	781 IGCCCCTGAGCCGGAGCGCCCGTTGGGCAGGGGTCCTGGGCCCACCCGGGCAGGAC 840	941 GCGTGGACCGAGTGACCGTGGTTTCTGTGTGGTGTCACCTGCCAGACCCGCCGAAGAAGC 900	901 CACCTCTTTGGAGGTGCGCTCTCTGGCACGCGCCACTCCCACCCA	961 GCACCACGGGGCCCCCCATCCACATCGCGGCCACGTCCCTGGGACACGCCTTGTCC 1020	1021 CCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCG 1080
5 G	o o	g &	g &	g O	g Sy	oy Oy	g S	g &	g &	д 6	g S	do Oy	da Qy	g S	d O	g &	a &

```
1200
                                                                                                                                                                               1380
                                                                                                                                                                                                                          1440
                                                                                                                                                                                                                                                                                                                                                                                                          1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                    1740
 1140
                                                                                       1260
                                                                                                                                   1320
                                                                                                                                                                                                                                               1451
                                                                                                                                                                                                                                                                      1500
                                                                                                                                                                                                                                                                                                                                                               1620
                                                                1211
                                                                                                                                                        1331
                                                                                                                                                                                                    1391
                                                                                                                                                                                                                                                                                            1511
                                                                                                                                                                                                                                                                                                                                        1571
                                                                                                                                                                                                                                                                                                                                                                                     1631
                                                                                                                                                                                                                                                                                                                                                                                                                               1691
                                                                                                              1271
                                                                                                                                                                                                                                                                                                                 11152 GACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCCT
                                                                                                                                               CGGCTTCGTGCGGGCCTGCCCGGCTGGTGCCCCCAGGCCTCTGGGGCTCCAGGCA
                                                                                                                                                                                                                                                                                 GAGCCCAGGGTTGGCTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGAGAAGTCCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                        GAGCCCAGGGGTTGGCTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAAGTTCCTGCACTGGCTGATGAGTGTGTACGTCGTCGAGCTGCTCAGGTCTTTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1801 CAAGTIGCAAAGCATIGGAATCAGACAGCACTIGAAGAGGGTGCAGCIGCGGGAGCIGTC
                                           GACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCGCCT
                                                                                                                                    GTGCCCCTACGGGGTGCTCCTCAAGACGCACTGCCCGCTGCGAGCTGCGGTCACCCCAGC
                                                                                                                                                                               AGCCGGTGTCTGTGCCCGGGAGAGCCCCAGGGCTCTGTGGCGCCCCCCGAGGAGGA
                                                                                                                                                                                                                            CACAGACCCCCGTCGCCTGGTGCAGCTGCTCCGCCAGCACAGCAGCCCCTGGCAGGTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Catalytic Subunit Gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 35, Application US/09026981
Sequence 35 Application US/09026981
GENERAL INFORMATION:
APPLICANT: Counter, Christopher M.
APPLICANT: Weinberg, Robert A.
TILLE OF INVENTION:
TOMBER OF SEQUENCES: 52
CORRESPONDENCE ADDRESS:
ADDRESSEE: Hamilton, Brook, Smith & Reynolds, P.C STREET: Two Millitia Drive
CITY: Lexington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ο,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD; DNA; UNC; 4023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LT 9
US-09-026-981-35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       XXXXXX
                                                                                                                                                                                                                                                                                            1452
                                                                                                                                                                                                                                                                                                                                                                                                                                                     1681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1861
                                                                                       1201
                                                                                                            1212
                                                                                                                                    1261
                                                                                                                                                         1272
                                                                                                                                                                               1321
                                                                                                                                                                                                    1332
                                                                                                                                                                                                                          1381
                                                                                                                                                                                                                                               1392
                                                                                                                                                                                                                                                                       1441
                                                                                                                                                                                                                                                                                                                  1501
                                                                                                                                                                                                                                                                                                                                        1512
                                                                                                                                                                                                                                                                                                                                                               1561
                                                                                                                                                                                                                                                                                                                                                                                    1572
                                                                                                                                                                                                                                                                                                                                                                                                          1621
                                                                                                                                                                                                                                                                                                                                                                                                                               1632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1872
```

```
1090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1382
                                                                                                                                                                                                                                                                                                                                                                                                                               1022
                                                                                                                                                                                                                                                                                                                                                                                                                                                     1030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1510
                                                                                                                                                                                                                                                                                                                                                                                                        970
                                  490
                                                         542
                                                                              550
                                                                                                                                                 662
                                                                                                                                                                                              722
                                                                                                                                                                                                                    730
                                                                                                                                                                                                                                          782
                                                                                                                                                                                                                                                                 790
                                                                                                                                                                                                                                                                                        842
                                                                                                                                                                                                                                                                                                              850
                                                                                                                                                                                                                                                                                                                                     902
                                                                                                                                                                                                                                                                                                                                                                                  962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGTGCCCCTACGGGGTGCTCCTCAAGACGCACTGCCCGCTGCGGAGCTGCGGTCACCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGAGGCGCGGGGGGCAGTGCCAGCGGAAGTCTGCCGTTGCCCAAGAGGCCCAGGCGTGGCG
                                                                                                                                                                                                                                                                                                                                     CGCGTGGACCGAGTGGTTCTGTGTGGTGTCACCTGCCAGACCGCCGCCGAAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                             AGCACCACGCGCCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              483 GCCGCGTGGGCGACGACGTGCTGGTTCACCTGCTGCCACGCTGCGCGCTCTTTGTGCTGG
                                                                                                     543 TGGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCTCGGCGCTGCCA
                                                                                                                                                 CTCAGGCCCGGCCCCCCCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGG
                                                                                                                                                                                                                                                                 GGAGGCGCGGGGCGAGTGCCAGCCGAAGTCTGCCGTTGCCCAAGAGGCCCAGGCGTGGCG
                                                                                                                                                                                                                                                                                                                                                           851 CGCGTGGACCGAGTGACCGTGGTTTCTGTGTGTGTCACCTGCCAGACCCGCCGAAGAAG
                                                                                                                                                                                                                                                                                                                                                                                 CCCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGCCCTCCTTCCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGCCCCAGCGCTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACACAGACCCCCGGTCGCCTGGTGCAGCTCCGCCAGCACCAGCAGCCCCTGGCAGGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACACAGACCCCCGTCGCCTGGTGCAGCTGCTCCGCCAGCACAGCCCCTGGCAGGTGT
             1023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1451
           423
                                 431
                                                                             491
                                                                                                                          551
                                                                                                                                                 603
                                                                                                                                                                        611
                                                                                                                                                                                              663
                                                                                                                                                                                                                    671
                                                                                                                                                                                                                                          723
                                                                                                                                                                                                                                                                 731
                                                                                                                                                                                                                                                                                        783
                                                                                                                                                                                                                                                                                                              791
                                                                                                                                                                                                                                                                                                                                     843
                                                                                                                                                                                                                                                                                                                                                                                 903
                                                                                                                                                                                                                                                                                                                                                                                                        911
                                                                                                                                                                                                                                                                                                                                                                                                                               963
                                                                                                                                                                                                                                                                                                                                                                                                                                                    971
                                                                                                   g
                                                                                                                                             8
                                                                                                                                                                                             셤
                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                   엄
                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                  ò
                                                    ద
                                                                           ò
                                                                                                                          οy
                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGCCGCTGGCCACGTTCGTGCGGCGCCTGGGGCCTGGTGCTGGTGCAGCGCG 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGGACCCGCCGCCGTTTCCGCCGCGCCTGGTGCCTTGGTGCGTGCCCTGGGACG 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCAGCCACTACCGCGAGGTGC 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCCGAGTGCTGCAGAGGCTGTGCGAGCGCGGCGCAAGAACGTGCTGGCCTTCGGCTTCG 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCCCGCGATGC 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCTGCTGGACGGGGCCCCGGGGGCCCCCGAGGCCTTCACCACCAGCGTGCGCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 4023;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE 4023 BP; 668 A; 1363 C; 1277 G; 715 T; 0 OTHER
                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 1906; DB 23;
Pred. No. 0.00e+00;
0; Mismatches 2;
                                                                                                                                                                                                                                                                                                                               REFERENCE/DOCKET NUMBER: 32,227
REFERENCE/DOCKET NUMBER: WH197-11p4AM
TELECOMMUNICATION INFORMATION:
TELEPHONE: 71.861-6240
                                                                                                                                                       FILING DATE: 30-007-1997

PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/055,762
FILING DATE: 14-AUG-1997

PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/054,549
FILING DATE: 01-AUG-1997

PRIOR APPLICATION NUMBER: US 60/047,151
FILING DATE: 20-MAY-1997

PRIOR APPLICATION NUMBER: US 60/047,151
FILING DATE: 20-MAY-1997

APPLICATION NUMBER: US 60/038,750

FILING DATE: 20-FEB-1997

ATTORNEY AGENT INFORMATION:
                                                                                                    APPLICATION: 20-FEB-1950
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/064,322
                                                                                   CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/026,981
FILING DATE: 20-FEB-1998
                                                                                                                                                                                                                                                                                                                                                                                           INFORMATION FOR SEQ ID NO: 35:
                                                                                                                                                                                                                                                                                                                        NAME: Granahan, Patricia
REGISTRATION NUMBER: 32,
                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 4023 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                            TELEPHONE: 781-001
                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99.3%;
larity 99.9%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                     02173
¥
           COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Simi
Matches 1908;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          251
```

8 6 8 6 8

පු

ò

g

ò

셤

ö

g

ò

ò

```
LENGTH: 4029 base pairs
TYPE: nucleic acid
                                                                                                                                                single
 PRIOR APPLICATION DATA:
                                                                                                                                                                  MOLECULE TYPE: CDNA
                                                                                                                                                         linear
                                                                                                                                              STRANDEDNESS:
                                                                                                                                                      TOPOLOGY:
                                                                                                                                                                         FEATURE:
NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                612
                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
  g
                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ă
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
1811 GCAAGTTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGGAGCTGT 1870
                                                 1631 GGAGCCCAGGGGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGTCCTGG 1690
                                                                                                                           1691 CCAAGTTCCTGCACTGGCTGATGAGTGTGTACGTCGAGCTGCTCAGGTCTTTTTT 1750
                                                                                                                                                                 GGAGCCCAGGGGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGG 1682
                                                                                                                 CCAAGITCCTGCACTGCTGATGAGTGTGTACGTCGAGCTGCTCAGGTCTTTTTT 1742
                                                                                                                                                       GCAAGTTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGGTGCAGCTGCGGGAGCTGT 1862
                                       AGCTCTCGCTGCAGGAGCTGACGTGGAAGATGAGCGTGCGGGGCTGCGCTTGGCTGCGCT
                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/854,050
FILING DATE: 09-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE: Townsend and Townsend and Crew STREET: Two Embarcadero Center, 8th Floor STATE: California COUNTRY: United States of America
                                                                                                                                                                                                                                                                              JT 10
US-08-854-050-173 STANDARD; DNA; UNC; 4029 BP
                                                                                                                                                                                                                                                                                                                  Sequence 173, Application US/08854050
Sequence 173, Application US/08854050
GENERAL INFORMATION:
APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Chapmen, Toru
APPLICANT: Nakamura, Toru
APPLICANT: Harley, Calvin
APPLICANT: Harley, Calvin
APPLICANT: Andrews, William H.
TITLE OF INVENTION: Novel Telomerase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 09-MAY-1997
CLASSIFICATION: 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                   CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ZIP: 94111
                                                                                                                                                                                                                                                                                                  XXXXXX
                                                                                                                                                                                           1803
                                       1563
                                                                            1623
                                                                                                                 1683
                                                                                                                                                                                                                                                                              윱
                                     g
                                                                           g
                                                                                                               g
                                                                                                                                    ò
                                                                                                                                                     a
                                                                                                                                                                                          셤
                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                   ò
                   ò
                                                         à
                                                                                              ö
                                                                                                                                                                         ò
```

```
6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181 GGACCCGGCGGTTTCCGCGCGNTGGTGGCCCANTGCNTGGTGTGCGTGCCTGGGANGN 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121 GCCGCTGGCCACGTTCGTGCGGCGCCTGGGGCCCCAGGGCTGGCGCGGTGCAGCGCGG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCIGCIGGACGGGCCCCGCGGGGCCCCCCCGAGGCCTTCACCACCAGCGTGCGCAGCTA 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCAGGCCCGGCCCCCCCACACGCTANTGGACCCGAANGCGTCTGGGAT--CCAACGGGC 658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 GCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCTGCTGCGCAGCCACTACCGCGAGGTGCT 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 GCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCCGGGATGCC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12 GCAGCGCTGCCTGCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCCGCGATGCC 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGAGTGCTGCANANGCTGTGCGANCGCGGCGGAANAACGTGCTGGCCTTCGGCTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               132 GCCGCTGGCCACGTTCGTGCGGCGCCTGGGGCCCCAGGCTGGCGGCTGGTGCAGGGCTGGGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         252 ACGCCCCCCCCCCCCCCCCTCCTTCCGCCAGGTGCCTGCAAGGAGCTGGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGCGTGGGCGACGACGTGCTGGTTCACCTGCTGGCACGCTGCGCGCTCTTTGTGCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          312 CCGAGTGCTGCAGAGGCTGTGCGAGCGCGCGCGAAGAACGTGCTGGCCTTCGGCTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               481 CCGCGTGGCCGACGACGTGCTGGTTCACCTGCTGGCACGCTGCCGCGNTNTTTGTGCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGNTCCCAGCTGCGCCTACCANGTGTGCGGGCCGCCGCTGTACCAGCTCGGCGCTGCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 4029;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 83.1%; Score 1596; DB 21; Length 40 Best Local Similarity 95.7%; Pred. No. 0.00e+00; Matches 1828; Conservative 0; Mismatches 75; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCATION: 1..4029
OTHER INFORMATION: /note= "preliminary sequence for OTHER INFORMATION: human TRT cDNA insert of OTHER INFORMATION: plasmid pGRN121"
SEQUENCE 4029 BP; 687 A; 1342 C; 1255 G; 720 T; 25 OTHER.
                                                                                                                                                 015389-002930US
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-OCT-1996
                                        CLASSIFICATION: 536
ATTORNEY/AGENT INFORMATION:
NAME: APPIe, Randolph T.
RESISTRATION NUMBER: 36,429
REFERENCE/DOCKET NUMBER: 01538
TELECOMMUNICATION INFORMATION:
TELEFAX: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 173:
SEQUENCE CHARACTERISTICS:
```

```
CITY: San Francisco
STATE: California
COUNTRY: United States of America
ZIP: 94111
                                                                                                                                                        Sequence 173, Application US/08851843
Sequence 173, Application US/08851843
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME: Apple, Randolph T.
REGISTRATION NUMBER: 36,429
REFERENCE/DOCKET NUMBER: 0153
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
TELEPHONE: (415) 576-0200
INFORMATION FOR SEQ ID NO: 173:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE CHARACTERISTICS:
LENGTH: 4029 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY: linear MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY:
                                                                                                                                         XXXXXX
                             1795
                                                                    1855
           ò
                          q
                                                ò
                                                                    g
                                                                                                                             CCAAGTICCTGCACTGGCTGATGAGTGTGTACGTCGAGCTGCTCAGGTCTITCTTI 1734
                                                                                                                                                                                                GCACCACGGGGCCCCCCATCCACATCGCGGCCACCACGTCC-TGGGACACGCCTTGTCC 1016
                                                                                                                                                                                                                                                                               CCCTCCTTCCTACTCAATATATCTGAGGCCCAGCCTGACTGGGCGTTCGTGG 1135
                                                                                                                                                                                                                                                                                                                                                                      ACAACGAACGCCGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCA 1554
                                                                                                                                                                                                                    GCACCACGCGGGCCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTCC 1031
                                                                                                                                                                                                                                        CCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGNA-CACTGCGN 1075
                                                                                                                                                                                                                                                 1092 GCCCTCCTTCCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGGA 1151
                                                                                                                                                                                                                                                                                                                               GCCCCAGCGNTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCA 1254
                                                                                                                                                                                                                                                                                                                                                                                                  GTGCCCCTACGGGGTGTTCCTCAAGACGCACTGCCCGCTGCGAGCTGCGGTCACCCCAGC 1314
                                                                                                                                                                                                                                                                                                                                                                                                                                         AGCCGGTGTCTGTGCCCGGGAGAAGCCCCAGGGCTCTGTGGCGGCCCCCCGAGGAGGAGGA 1374
                                                                                                                                                                                                                                                                                                                                                                                                                                                    1375 ACACAGACCCCCGTCGCCTGGTGCAGCTCCCCCCAGCACAGCAGCCCCTGGCAGGTGT 1434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACGGCTTCGTGCGGGCCTGCCTGCGCTGGTGCCCCCAGGCCTCTGGGGCTCCAGGC 1494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACAACGAACGCCGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCA 1570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGAGCCCAGGGGTTGGCTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGG 1674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGAGCCCAGGGGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGG 1690
                                                                                                                                                        CACCTCTTTGGAGGGTGCGCTCTCTGGCACGCGCCACTCCCATCCGTGGGCCGCCA 957
          851
                                      GAGGCGCGCGCCAGTCCAGCCGAAGTCTGCCGTTGCCCAAGAGGCCCCAGGCGTGGCGC 777
                                                                                                                   GCCTGGACCGAGTGACCGTGGTTTCTGTGTGGTGTCACCTGCCAGACCCGCCGAAGAAGC 897
                                                GAGGCGCGGGGCCAGTCCAGCCGAAGTCTGCCGTTGCCCAAGAGGCCCAGGCGTGGCCC
                                                                             TGCCCCTGAGCCGGAGCGGACGCCCGTTGGGCAGGGGTCCTGGGCCCCACCCGGGCAGGAC
                                                                                      CTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCCTGGGC-TGCCAGCCCCGGGTGCGAG
                                                                                                                                                                                                                                                                                                                     AGACANTCTTTCTGGTTCCAGGCCTTGGATGCCAGG-ATTCCCCGCAGGTTGCCCCGCCT
                                                                                                                                                                                                                                                          1032
                                                                                                                                                                                                                                                                                                                     1136
                                                                                                                                                                                                                                                                                                                                                                                                 1255
                                                                                                                                                                                                                                                                                                                                                                                                                   1272
                                                                                                                                                                                                                                                                                                                                                                                                                                        1315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1511
                                                                                                                                                                            912
                                                                                                                                                                                                                   972
                                                                                                                                                                                                                                        1017
                                                                                                                                                                                                                                                                               1076
                                                                                                                                                                                                                                                                                                                                        1152
                                                                                                                                                                                                                                                                                                                                                           1195
                                                                                                                                                                                                                                                                                                                                                                              1212
                                                                                                                                                                                                                                                                                                                                                                                                                                                           1332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1691
629
                  672
                                     718
                                                        732
                                                                            778
                                                                                               792
                                                                                                                   838
                                                                                                                                      852
                                                                                                                                                         868
                                     ద
                                                                           g
                                                                                                                 g
                                                                                                                                                         g
                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                        õ
                                                                                              à
                                                                                                                                      å
                                                                                                                                                                           ò
                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                  à
```

```
ATGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAGTGTCTGGA 1794
                                                                                                                             1811 GCAAGTIGCAAAGCAITGGAAICAGACAGCACTIGAAGAGGGTGCAGCTGCGGGAGCTGT
                                               1751 ATGICACGAGACCACGITICAAAAGAACAGGCICITITICIACCGGAAGAGIGICIGGA
                                                                                                      GCAAGTIGCAAAGCAITGGAAICAGACAGCACTIGAAGAGGGIGCAGCIGCGGGAGCTGT
                                                                                                                                                                                                                                   1871 CGGAAGCAGAGGTCAGGCAGCATCGGGAAGCCAGCCCCCCCTGCTGACG 1920
                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/851,843
FILING DATE: 05-MAY-1997
CLASSIFICATION: 536
PRIOR APPLICATION NUMBER: US 08/846,017
FILING DATE: 23-APR-1997
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         015389-002930US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Lingner, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Marin, Gregg B.
APPLICANT: Harley, Calvin
APPLICANT: Andrews, William H.
TITLE OF INVENTON: Novel Telomerase
NUMBER OF SEQUENCES: 223
CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Cr
                                                                                                                                                                                                                                                                                                                                                .T 11
US-08-851-843-173 STANDARD; DNA; UNC; 4029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996
CLASSIFICATION: 536
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION: 536
1735
```

· rnp

```
928
                                                                                                                                                                                                                                                                                                                                  RESULT
ID US
AC XX
DT SE
CC SE
CC SE
                                                                                                                                           g
                                                                                                                                                                                                                                                                                                         g
           δ
                         g
                                δy
                                           g
                                                              g
                                                                          ò
                                                                                   a
                                                                                            δ
                                                                                                    g
                                                                                                                ŏ
                                                                                                                          g
                                                                                                                                   QY
                                                                                                                                                        δ
                                                                                                                                                                g
                                                                                                                                                                          ò
                                                                                                                                                                                   g
                                                                                                                                                                                              ò
                                                                                                                                                                                                     g
                                                                                                                                                                                                                 δý
                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                             엄
                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                   ò
                                                      ŏ
                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                            δ
                                        9
                                                                    180
                                                                                                            240
                                                                                                                                                                                                             540
                                                                                                                                                                                                                                600
                                                                                                191
                                                                                                                     251
                                                                                                                               300
                                                                                                                                        311
                                                                                                                                                            371
                                                                                                                                                                      420
                                                                                                                                                                          480
                                                                                                                                                                                                  491
                                                                                                                                                                                                                      551
                                                                                                                                                                                                                                         611
                                                                                                                                                                                                                                                    658
                                                                                                                                                                                                                                                             671
                                                                                                                                                                                                                                                                       717
                                                                                                                                                                                                                                                                                731
                                                                                                                                                                                                                                                                                           111
                                                                                                                                                                                                                                                                                                   791
                                                                                                                                                                                                                                                                                                              837
                                                                                                                                                                                                                                                                                                                       851
                                                                                                                                                                                                                                                                                                                                  897
                                                                                                                                                                                                                                                                                                                                                     957
                                                                                                                                                                                                                                                                                                                                                              971
                                                  9
                                                        71
                                        Gaps
                                                                                                           GCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGGCCACCCCCGCGATGCC
                                                                                                                                                                                         CCTGCCCAACACGGTGACCGACGCACTGCGGGGGAGCGGGGCGTGGGGGCTGCTGCTGCTGC
                                                                                                                                                                                                           GAGGCGCGGGGCAGTGCCAGCCGAAGTCTGCCGTTGCCCAAGAGGCCCAGGCGTGGCGC
                                                                                                                                                                                                                                                                                                             TGCCCCTGAGCCGGAGCGGACGCCCGTTGGGCAGGGGTCCTGGGCCCCACCCGGGCAGGAC
                                                                                                                                                                                                                                                                                                                   GCCTGGACCGAGTGACCGTGGTTTCTGTGTGGTGTCACCTGCCAGACCCGGCGAAGAAGC
                                                                                                                                                                                                                                                                                                                                      ANGGCNGCCCCCCCCCCCCCCCTCCTTCCGCCAGGTGTCCTGCTGAANGANCTGGTGGC
                                                                                                                                                                      GCTGCTGGACGGGCCCGCGGGGCCCCCCGAGGCCTTCACCACCAGCGTGCGCAGCTA
                    OTHER
                              Length
      sequence it
      /note= "preliminary sequen
human TRT cDNA insert of
plasmid pGRN121"
1342 C; 1255 G; 720 T; 25
                                        75;
                             Score 1596; DB 21;
Pred. No. 0.00e+00;
                                        0; Mismatches
                              83.1%;
ilarity 95.7%;
Conservative
LOCATION: 1..4029
OTHER INFORMATION: //
OTHER INFORMATION: h/
OTHER INFORMATION: p/
SEQUENCE 4029 BP; 687 A; I:
                                  Best Local Similarity
Matches 1828; Conser
                              Query Match
                                                                                                                                                                                                                                                                                672
                                                 ч
                                                                                                 132
                                                                                                                    192
                                                                                                                                        252
                                                                                                                                                                                                                                         552
                                                                                                                                                                                                                                                   501
                                                                                                                                                                                                                                                             612
                                                                                                                                                                                                                                                                                                   732
                                                                                                                                                                                                                                                                                                             778
                                                                                                                                                                                                                                                                                                                       792
                                                          7
                                                                                                                                                                               372
                                                                                                                                                                                        421
                                                                                                                                                                                                  432
                                                                                                                                                                                                                      492
                                                                                                                                                                                                                                                                      629
                                                                                                                                                                                                                                                                                          718
                                                                                                                                                                                                                                                                                                                                 838
                                                                                                                                                                                                                                                                                                                                                    868
                                                                                                                                                                                                                                                                                                                                                              912
                                                                    61
                                                                             72
                                                                                        121
                                                                                                           181
                                                                                                                              241
                                                                                                                                                            312
                                                                                                                                                                     361
                                                                                                                                                                                                            481
                                                                                                                                                                                                                               541
                                                                                                                                                  301
                                                 윱
                                                                    ద
                                                                                       g
                                                                                                         g
                                                                                                                                                                                                          a
 ឧឧឧ
                                                          ò
                                                                              õ
                                                                                                ογ
                                                                                                                    ò
                                                                                                                            g
                                                                                                                                     õ
                                                                                                                                                g
                                                                                                                                                           ò
                                                                                                                                                                    g
                                                                                                                                                                              ò
                                                                                                                                                                                       g
                                                                                                                                                                                                 ò
                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                              οŽ
                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                              ð.,
```

```
1016
                            1075
                                                                                                                                                                                                                  1450
                                                                                                                                                                                                                                             1510
                                                                                                                                                                                                                                                           1554
                                                                                                                                                                                                                                                                                                     1630
                                                                                                                                                                                                                                                                                                                    1674
                                                                                    1194
                                                                                                                1254
                                                                                                                                                                                    1391
                                                                                                                                                                                                   1434
                                                                                                                                                                                                                                1494
                                                                                                                                                                                                                                                                                       1614
                                                                                                                                                                                                                                                                                                                                              1734
                          ACAACGAACGCCGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCA
                                                                                                                                                                                                                                                                                                                                                       CCCTCCTTCCTACTCATATATCTGAGGCCCAGCCTGACTGGCGTTCGGGAGGTTCGTGG
                                                                                    AGACANTCTTTCTGGTTCCAGGCCTTGGATGCCAGG-ATTCCCCGCAGGTTGCCCGCGCT
                                                                                                                GCCCCAGCGNTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCA
                                                                                                                                                                                                                                                                                       AGCTCTCGCTGCAGGAGCTGACGTGGAAGATGAGCGTGCGGGACTGCGCTTGGCTGCGCA
                                                                                                                                                                                                                                                                                                                    GGAGCCCAGGGGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGG
                                                                                                                                                                                                                                                                                                                                               CCAAGTICCIGCACIGGCIGAIGAGIGIGIACGICGICGAGCIGCICAGGICTITITI
                                                                                                                                                                                                                                                                                                                                                                                                                                   BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              UNC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US/08912951
US/08912951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 6, Application
Sequence 6, Application
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      T 12
US-08-912-951-6
                                                       1076
                                         1032
                                                                      1092
                                                                                   1136
                                                                                                 1152
                                                                                                                1195
                                                                                                                             1212
                                                                                                                                           1255
                                                                                                                                                         1272
                                                                                                                                                                       1315
                                                                                                                                                                                    1332
                                                                                                                                                                                                   1375
                                                                                                                                                                                                                  1392
                                                                                                                                                                                                                                1435
                                                                                                                                                                                                                                            1451
                                                                                                                                                                                                                                                           1495
                                                                                                                                                                                                                                                                         1511
                                                                                                                                                                                                                                                                                       1555
                                                                                                                                                                                                                                                                                                     1571
                                                                                                                                                                                                                                                                                                                   1615
                                                                                                                                                                                                                                                                                                                                1631
                                                                                                                                                                                                                                                                                                                                              1675
                                                                                                                                                                                                                                                                                                                                                             1691
                                                                                                                                                                                                                                                                                                                                                                            1735
                                                                                                                                                                                                                                                                                                                                                                                                       1795
                                                                                                                                                                                                                                                                                                                                                                                                                     1811
                                                                                                                                                                                                                                                                                                                                                                                                                                   1855
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1871
                            1017
                                                                                                                                                                                                                                                                                                                                                                                         1751
```

250

2676

326

2736

2796

446

2856

```
2497 CACGGCCGCCCCCCCCCCCCCCTTCCGCCAGGTGGGCCTCCCCGGGGTCGGCGTCC 2556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              131 TGCCGCTGGCCACGTTCGTGCGGCGCCTGGGGCCCCAGGCTGGCGGCTGGTGGTGGAGCGGCG 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTCCCCCGGTGTACGCCGA
                                                                                                                                                                                                                                                                           2677 GCTGTGCGAGCGCGCGCGAAGAACGTGCTGGCCTTCGGCTTCGCGTGCTGGACGGGGC
                                                                                                                                                                                                                                                                                                                                                                                  2557 GGCTGGGGTTGAGGGCGGCGGGGGAACCAGCGACATGCGGAGAGCAGCGCGAGGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                      3097 IGCCAGCCGAAGTCTGCCGTTGCCCAAGAGGCCCAGGCGTGGCGCTGCCCCTGAGCCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3157 GCGGACGCCCGTTGGGCAGGGGTCCTGGGCCCACCCGGGCAGGACGCGTGGACCGAGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGTGGTTTCTGTGTGTGTCACCTGCCAGACCCGCCGAAGAAGCCACCTCTTTGGAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGCGCTCTCTGGCACGCGCCACTCCCATCCGTGGGCCGCCAGCACCACGCGGGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTCCCCGGGTGTACGCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCGGGCCCTTCCTACT
                                                                   2617 CAGGGCGCTTCCCCCGCAGGTGTCCTGCCTGAAGGAGCTGGTGGCCGAGTGCTGCAGAG
                                                                                                                                                                                                                                       2737 CCGCGGGGCCCCCCCGAGGCCTTCACCACCAGGGTGCGCAGCTACCTGCCCAACACGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    567 CTACCAGTGTGCGGGCCGCCGTGTACCAGCTCGGCGCTGCCACTCAGGCCCGGCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2977 GCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGGCCTGGAACCATAGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .3037 CAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCCCCGGGTGCGAGGAGGCGCGGGGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    327 GCTGTGCGAGCGCGGCGCGAAGAACGTGCTGGCCTTCGCCTTCGCGCTGCTGGACGGGGC
                                                                                                                                                                                                                                                                                                                                               2377 TGCCGCTGGCCACGTTCGTGCGGCGCCTGGGGCCCCAGGGCTGGCGGCTGGTGCAGCGCG
                                                                                                                                                                                                                                                    289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3397
                                                                                                                                                                                                  288
                                                                                                                     요
                                                                                                                                                                      g
                                                                                                                                                                                                                         원
                                                                                                                                                                                                                                                                           요
                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                                       음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                 음
                                         ò
                                                                용
                                                                                             ò
                                                                                                                                                ð
                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                음
                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Óγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Orapman, Karen B.
APPLICANT: Chapman, Karen B.
APPLICANT: Harley, Calvin
APPLICANT: Andrews, William H.
TITLE OF INVENTION: HUMAN TELOMERASE CATALYTIC SUBUNIT: DIAGNOSTIC AND TITLE OF INVENTION: THERAPEUTIC METHODS
NUMBER OF SEQUENCES: 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2257 GGCAGCGCTGCGTCCTGCTGCGACGTGGGAAGCCCTGGCCCCGGCCACCCCCGCGATGC 2316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGGGGGCTCCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGGAGCCACTACCGCGAGGTGC 2376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11 GCCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCCCGCGATGC 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Indels 104; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 1497; DB 22; Length 4200;
Pred. No. 0.00e+00;
0; Mismatches 0; Indels 104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOLECULE TYPE: DNA (genomic)
SEQUENCE 4200 BP; 525 A; 1187 C; 1138 G; 644 T; 706 OTHER
                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/912,951
FILING DATE: 14-AUG-1997
                                                                                                                                               \Gamma_{LP}
                                                                                                                                   ADDRESSEE: Townsend and Townsend and Crew STREET: Two Embarcadero Center, 8th Floor CITY: San Francisco STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE/DOCKET NUMBER: 015389-002600US TELECOMMUNICATION INFORMATION: TELEPHONE: (415) 576-0200 INFORMATION FOR SEQ ID NO: 6: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: 0S 08/724,643
FILING DATE: 01-0CT-1996
CLASSIFICATION: 435
                                                                                                                                                                                                COUNTRY: United States of America
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Randolph T. 36,429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 4200 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      78.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local Similarity 94.0%;
Matches 1630; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REGISTRATION NUMBER:
                                                                                                                                CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                   FILING DATE: 14 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRANDEDNESS:
                                                                                                                                                                                                            94111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
    ò
```

2916

999

3036

989

626

3096

3156

806

746

3216

3276

3336

```
APPLICATION NUMBER:
FILING DATE: 25-APF
                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                3457 CAGCICICIGAGGCCCAGCCIGACIGGCGCICGAGGCICGIGGAGACCAICIIICIGG 3516
                                       1107 CAGCICICIGAGGCCCAGCCIGACIGGCGCTCGAGGCICGIGGAGACCAICITICIGGG 1166
                                                                                 GCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCAGTGCCCCTACGGGGT 1286
                                                                                                GCTCCTCAAGACGCACTGCCCGCTGCGAGCTGCGGTCACCCCAGCAGCCGGTGTCTGTGC 3696
                                                                                                                                 CCGGGAGAAGCCCCAGGGCTCTGTGGCGGCCCCCGAGGAGGAGGACACAGACCCCCGTCG 3756
                                                                                                                                                                CCTGGTGCAGCTGCTCCGCCAGCACAGCAGCCCCTGGCAGGTGTACGGCTTCGTGCGGGC 3816
                                                                                                                                                                                                  GCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCAGTGCCCCTACGGGGT
                                TTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCCGCTGCCCCAGCGCTACTG
                                                                         APPLICANT: Morin, Gregg B.
APPLICANT: Allsopp, Richard
APPLICANT: Allsopp, Richard
APPLICANT: DePinho, Ronald
APPLICANT: Greenberg, Roger
TITLE OF INVENTION: Mouse Telomerase Reverse Transcriptase
NUMBER OF SEQUENCES: 101
CORRESPONDENCE ADDRESS:
ADDRESSEE: Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTY: CALILLIANA

ZIP: 94111-3834

ZIP: 94111-3834

COMPUTER READABLE FORM:
MEDIUW TYPE: FLORPY disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFWARE: Patentin Release #1.0, Version #1.30

CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/042,460

FILING DATE: 16-MAR-1998
CLASSIFICATION: 536
PRIOR APPLICATION NUMBER: US/09/042,463

FILING DATE: 01-OCT-1996
                                                                                                                                                                                                                                                                                                         T 13
US-09-042-460-1 STANDARD; DNA; UNC; 3496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                        Sequence 1, Application US/09042460 Sequence 1, Application US/09042460 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                        CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                          XXXXXX
                                                                                                                                                                                                               1467
                                                                                                                                                                                                                                3877
                               3517
                                                1167
                                                                3577
                                                                                1227
                                                                                                3637
                                                                                                                1287
                                                                                                                                3697
                                                                                                                                                1347
                                                                                                                                                                3757
                                                                                                                                                                                1407
                                                                                                                                                                                                3817
                                                                                                                                                                                                                                                 1527
엄
                                                              셤
                                                                               ò
                                                                                              g
                                                                                                               ò
                                                                                                                               g
                                                                                                                                                              ద
                                                                                                                                                                               ö
                                                                                                                                                                                               8
                                                                                                                                                                                                               ö
                                                                                                                                                                                                                               요.
                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                               ద
                                                                                                                                                                                                                                                                                ő
                                                                                                                                                                                                                                                                                                                 ö
                              셤
                                               ò
                                                                                                                                                ò
```

```
3,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              83 CAGCCGATACCGGGAGGTGTGGCCGCTGGCAACCTTTGTGCGGGCCCTGGGGCCCCGAGGG 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23 CCCGGCCTTGAGCACAATGACCCGCGCTCCTCGTTGCCCCGCGGTGCGCTCTCTGCTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Mismatches 592; Indels 84;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OTHER INFORMATION: /product- "mouse telomerase reverse OTHER INFORMATION: transcriptase (mTRT)" SEQUENCE 3496 BP; 762 A; 998 C; 928 G; 808 T; 0 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 453; DB 23; Length 3496;
Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note= "mouse telomerase reverse
trascriptase (mTRT) cDNA clone"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note= "mouse telomerase reverse transcriptase (mTRT) cDNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   015389-003110US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUBBER: WO PCT/US97/17885
FILING DATE: 01-0CT-1997
PRIOR APPLICATION DATA:
APPLICATION NUBBER: US 08/974,549
FILING DATE: 19-NOV-1997
PRIOR APPLICATION NUBBER: US 08/974,584
FILING DATE: 19-NOV-1997
PRIOR APPLICATION DATA:
APPLICATION NUBBER: US 08/979,742
FILING DATE: 26-NOV-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
APPLICATION NUMBER: WO PCT/US97/17618
FILING DATE: 01-0CT-1997
PRIOR APPLICATION DATA:
                                      PRIOR DATE:

PRIOR DATE:

APPLICATION DATA:

APPLICATION NUMBER: US 08/851,843

FILING DATE: 06-MAY-1997

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 08/854,050

FILING DATE: 09-MAY-1997

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 08/911,312

FILING DATE: 14-MUG-1997

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 08/912,951

FILING DATE: 14-MUG-1997

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 08/915,503

FILING DATE: 14-MUG-1997

PRIOR DATE: 14-MUG-1997

PRIOR DATE: 14-MUG-1997
UMBER: US 08/846,017
25-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE/DOCKET NUMBER: 0153
TELECOMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISICS:
LENGTH: 3496 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME: Einhorn, Gregory P. REGISTRATION NUMBER: 38,440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY: linear MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc_feature
LOCATION: 10.3435
OTHER INFORMATION: /not
OTHER INFORWATION: trai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
23.6%;
Best Local Similarity 64.3%;
Matches 1216; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCATION: 39.3404
OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: -
LOCATION: 1.3496
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OTHER INFORMATION:
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: CDS
```

Page

```
USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         02173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  XXXXXX
                                                                                                                                                                                                  1344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1884
                                                    1224
                                                                                        1271
                                                                                                                         1284
                                                                                                                                                                                                                                    1346
                                                                                                                                                                                                                                                                      1404
                                                                                                                                                                                                                                                                                                          1406
                                                                                                                                                                                                                                                                                                                                           1464
                                                                                                                                                                                                                                                                                                                                                                                 1466
                                                                                                                                                                                                                                                                                                                                                                                                                  1524
                                                                                                                                                                                                                                                                                                                                                                                                                                                      1526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1706
                    1211
                                                                                                                                                               1331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FESULA FE
                                                    ò
                                                                                8
                                                                                                                      ŏ
                                                                                                                                                           a
                                                                                                                                                                                                  ð
                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      · 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTCCACATCTCTGCTGTCACCACCCGGCCAAAATGCCTTTCAGCTCAGGCCATTTATTGA 1030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACTCAGCAACCTCCAGCCTAACTTGACTGGGGCCAGGAGACTGGTGGAGATCATCTTTCT 1150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGGAGACCATCTTTCT 1163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGGCTCAAGGCCTAGGACATCAGGACCACTCTGCAGGACACCACCGTCTATCGCGTCGATA 1210
                                                                                                        262
                                                                                                                                                                                               CTGCCTGAAGGAGCTGGTGGCCCGAGTGCTGCAGGCTGTGCGAGCGGGGGGGAAGAA 350
                                                                                                                                                                                                                                                                                                                                           502
                                                                                                                                                                                                                                                                                                                                                                                                                  562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCCTGCTCGGTCCCCCGAGGTGCCTACTGCAGAGATTTGTCTTCTAAAGGAAAGGT 922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGACCGTGGTTTCTGTGTGTGTCACCTGCCAGACCGGCGAAGAAGCCACCTCTTTGGA 923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAGCCACTACCGCGAGGTGCTGCCGCTGGCCACGTTCGTGCGGCGCCTGGGGGCCCCAGGG
                                                                                                       AGIGIGCAIGCACTGGGGGTCACAGCCTCCACCGGCGGCTTTCCTTCCACCAGGTGTC
                                                                                                                         ATCCCTGAAAGAGCTGGTGGCCAGGGTTGTGCAGAGACTCTGCGAGCGCACAGAGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCTCACCAGTACAAGTGTGCCTTCAGCTAAGAAGGCCAGATGCTATCCTGTCCCGAGAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTCTGACCTGAGTCTCTCTGGG------TCGGTGTGTGTAAACACAAGCCCAG
                                                        CGTGCTGGCTTTTGGCTTTGACGCTTAACGAGGCCAGGCGGGCCTCCCATGGCCTT
                                                                                                                                                                                                                                                                                       CGTGCTGGCCTTCGCGCTTCGCGCTGGTGGACGGGGCCCCGCGGGGCCCCCCCGAGGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                TGCATGGATGCTACTGTTGAGCCGAGTGGGCGACGACCTGCTGGTCTACCTGCTGGCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTGTGCTCTTTATCTTCTGGTGCCCCCCAGCTGTGCCTACCAGGTGTGTGGGGTCTCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTACCAAATTTGTGCCACCACGGATATCTGGCCCTCTGTGTCCGCTAGTTACAGGCCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCGACCCGTGGGCAGGAATTTCACTAACCTTAGGTTCTTACAACAGATCAAGAGCAGTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGTCTGGGATGCG--------AACGGGCCTGGAACCATAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCGCCAGGAAGCACCGAAACCCCTGGCCTTGCCATCTCGAGGTACAAAGAGGCATCTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGAGGAGGACCCCACAGGCAGGTGCTACCAACCCCATCAGGCAAATCATGGGTGCCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGAGCGGACGCCCGTTGGGCAGGGTCCTGGGCCCACCCGGGCAGGACGCGTGGACCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GACCAGACATTTCCTTTACTCCAGGGAGATGGCCAAGAGCGTCTAAACCCCTCATTCCT
                                                                                                                                                                                                                                                                                                                         CACTAGTAGCGTGCGTAGCTACTTGCCCAACACTGTTATTGAGACCCTGCGTGTCAGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAGTGCCAGCCGAAGTCTGCCGTTGCCCAAGAGGCCCAGGCGTGGCGCTGCCCTGAGCC
                                 CAGGCGGCTTGTGCAACCCGGGGACCCGAAGATCTACCGCACTTTGGTTGCCCAATGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1044
                                                                                                                                        231
                                                                                                                                                                                                                                                                                                                                                                                              443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1164
                                                                 171
                                                                                                       203
                                                                                                                                                                                                              291
                                                                                                                                                                                                                                                   323
                                                                                                                                                                                                                                                                                     351
                                                                                                                                                                                                                                                                                                                         383
                                                                                                                                                                                                                                                                                                                                                          411
                                                                                                                                                                                                                                                                                                                                                                                                                                 471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           984
                                                                                                                                                                            263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       531
                               요
                                                                                                     g
                                                                                                                                                                                                                                               요
                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                   ò
                                                                                                                                        ò
                                                                                                                                                                        a
                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                     임
                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
õ
```

1405 GGAACTGATGTGGAAGATGAAAGTAGAGGATTGCCACTGGCTCCGCAGCAGCAGCGGGAA 1585 1643 1825 CTGGCAGATGCGGCCCTGTTCCAACAGCTGCTGGTGAACCATGCAGAGTGCCAATATGT-1270 TGCCCGGGAGAAGCCCCAGGGCTCTGTGGCGCCCCCCGAGGAGGAGGACACAGACCCCCG 1403 CTICITIAAGAACTIAAAGAAGTICATCICGTIGGGGAAATACGGCAAGCTATCACTGCA 1525 1644 TGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGGCCAAGTTCCTGCA 1703 1705 CTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCAGTGCCCCTACGG GGTGCTCTCAAGACGCACTGCCCGCTGCGACTGCGGTCACCCCAGCACCGGTGTCTG GCACCTCATGGATTTGCTCCGCCTGCACAGCAGTCCCTGGCAGGTATATGGTTTTCTTCG GGCCTGTCTCTGCAAGGTGGTGTCTGCTAGTCTCTGGGGTACCAGGCACAATGAGCGCCG CTGGCTGATGGACATACGTGGTACAGCTGCTTAGGTCATTCTTTTACATCACAGAGAG CATTGGAGTCAGGCAACACCTTGAGAGAGTGCGGCTACGGGAGCTGTCACAAGAGGAGGT CAGACTCCTCAGGTCACATTGCAGGTTTCGAACAGCAAACCAACAGGTGACAGATGCCTT --- GAACACCAGCCACC CTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAAGCTCTCGCTGCA CACATTCCAGAAGAACAGGCTCTTCTTCTACCGTAAGAGTGTGTGGAGCAAGCTGCAGAG APPLICANT: Counter, Christopher M.
APPLICANT: Meyerson, Matthew
APPLICANT: Weinberg, Robert A.
TITLE OF INVENTION: Telomerase Catalytic Subunit Gene
NUMBER OF SEQUENCES: 52
CORRESPONDENCE ADDRESS: P.C. ADDRESSEE: Hamilton, Brook, Smith & Reynolds, STREET: Two Militia Drive CITY: Lexington STATE: MA ВР 1826 CAGGCATCACCAGGACACCTGGCTAGCCATGC 1857 7T 14 US-09-026-981-36 STANDARD; DNA; UNC; 3346 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS Sequence 36, Application US/09026981 Sequence 36, Application US/09026981 GENERAL INFORMATION:

```
1722 CGTCGTCGAGCTGCTCAGGTCTTTTTTATGTCACGGAGACCACGTTTCAAAAGAACAG 1781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1782 GCTCTTTTTCTACCGGAAGAGTGTCTGGAGCAAGTTGCAAAGCATTGGAATCAGACAGCA 1841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1662 AGAGCACCGTCTGCGTGAGGAGATCCTGGCCAAGTTCCTGCACTGATGAGTGTGTA 1721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 CGTCGTCGAGCTGCTCTTTTTTATGTCACGAGACCACGTTTCAAAAGAACAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTCTTTTTCTACCGGAAGAGTGTCTGGAGCAAGTTGCAAAGCATTGGAATCAGACA 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181 CTTGAAGAGGGTGCAGCTGCGGGAGCTGTCGGAAGCAGAGGTCAGGCAGCATCGGGAAGC 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 AGAGCACCGTCTGCGTGAGGAGATCCTGGCCAAGTTCCTGCACTGGCTGATGAGTGTGTA 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 535;
APPLICANT: Andrews, William
TITLE OF INVENTION: Telomerase Reverse Transcriptase
NUMBER OF SEQUENCES: 170
CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, Eighth Floor
CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Indels
                                                                                                                                                                                                                                                                                             SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/911,312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MOLECULE TYPE: DNA (genomic)
SEQUENCE 535 BP; 105 A; 152 C; 173 G; 105 T; 0 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICE.

ATORNEY/AGENT INFORMATION.
NAME: Elihorn, Gregory P.
REGISTRATION NUMBER: 38,440
REGISTRATION NUMBER: 015389-002500US
TELEPHONE: (415) 576-0200
TELEPHONE: (415) 576-0300
INFORMATION FOR SED ID NO: 52:
SEQUENCE CHARACTERISTICS:
LENGTH: 535 base pairs
TYPE: nucleic acid
TYPE: nucleic acid
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 259; DB 22; 1
Pred. No. 6.37e-213;
0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                         CORRECT AFFLICATION MURBER: US/08/911,312
FILING DATE: 14-AUG-1997
CLASSIFICATION DATA:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-607-1996
FILING DATE: 18-APR-1997
FILING DATE: 25-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
PRIOR APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
PRIOR APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
FILING DATE: 09-MAY-1997
FRIOR APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
FRIOR APPLICATION NUMBER: US 08/854,050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/915,503
FILING DATE: 14-AUG-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US 08/912,951
                                                                                                                                                                                                                                     MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 / Match 13.5%;
Local Similarity 100.0%;
nes 259; Conservative
                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                             RY: USA
94111-3834
                                                                                                                                                                           COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
    971 GGGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGGGCCAAGTTCC 1030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1760 AGACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAGTGTCTGGAGGAAGTATCT 1819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1640 GGGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGGCCAAGTTCC 1699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1091 AGACCACGTITCAAAAGAACAGGCICITITITCIACCGGAAGAGIGICIGGAGCAAGIIGC 1150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1151 AAAGCATTGGAATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGGGAGCTGTCGGAAGCAG 1210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 281; DB 23; Length 3346;
Pred. No. 2.85e-234;
0; Mismatches 0; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY: linear
SEQUENCE 3346 BP; 617 A; 1027 C; 965 G; 735 T; 2 OTHER.
SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/026,981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1211 AGGTCAGGCAGCATCGGGAAGCCAGGCCCGCCCTGCTGACG 1251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1880 AGGTCAGGCAGCATCGGGAAGCCAGGCCCGCCCTGCTGACG 1920
                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME: Granahan, Patricia
REGISTRATION NUMBER: 32,227
REFERENCE/DOCKET NUMBER: WHI97-11p4AM
TELECOMUNICATION INFORMATION:
TELEPHONE: 781-861-6240
                                                                                               PRIOR APPLICATION: 433
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/064,322
FILING DATE: 30-0CT-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/055,762
FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/044,549
FILING DATE: 01-AUG-1997
PRIOR APPLICATION NUMBER: US 60/047,151
FILING DATE: 20-MAY-1997
PRIOR APPLICATION NUMBER: US 60/038,750
FILING DATE: 20-MAY-1997
ATTORNEY/AGENT INFORMATION:
NAME: CG-2020-2021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .r 15
US-08-911-312-52 STANDARD; DNA; UNC; 535
      20-FEB-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 52, Application US/08911312
Sequence 52, Application US/08911312
CENERAL INFORMATION:
APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Chapman, Karen B.
APPLICANT: Morin, Gregg B.
APPLICANT: Harley, Calvin B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INFORMATION FOR SEQ ID NO: 36: SEQUENCE CHARACTERISTICS: LENGTH: 3346 base pairs TYPE: nucleic acid STRANDEDNES: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            / Match 14.6%;
Local Similarity 100.0%;
nes 281; Conservative
                                                                                         CLASSIFICATION:
                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                XXXXXX
```

Matches

ò a õ q ò

g

ద

ò

ò

ô

Gaps

δ

q

ογ

Search completed: Thu Dec 24 16:09:24 1998 Job time: 3547 secs.

THIS PAGE BLANK (USPTO)

李安安女会会会在李安安的大学大学大学大学 医二甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基	***************************************
*	*

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

 $\ensuremath{\text{n.a.}}$  .  $\ensuremath{\text{n.a.}}$  .  $\ensuremath{\text{n.a.}}$  database search, using Smith-Waterman algorithm with gap extension penalties as well as gap opening penalties MPsrch_nna

Thu Dec 24 15:07:06 1998; MasPar time 156.09 Seconds 573.790 Million cell updates/sec Run on:

Tabular output not generated.

>US-08-951-733-13 (1-1920) from US08951733.seq (1 of 2) 1920 Description: Perfect Score: N.A. Sequence:

1 CACGCGTCCGGGCACCCGTG.......CCACGCCCGCCCTGCTGACG 1920 GTGCGCAGGCCCGTCGCGAC......GGTCCGGGCGGGACGACTGC

Scoring table:

TABLE default Gap open 30; Gap extend 1

Dbase 0; Query 0 STD Nmatch

88822 segs, 23323279 bases x 2 Searched:

Post-processing:

Minimum Match 0% Listing first 45 summaries

n-issued 1:5_COMB 2:PCT9_COMB 3:backfiles1 Database:

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

Mean 8.977; Variance 5.692; scale 1.577

Statistics:

## SUMMARIES

		dР						
Result No.	Score	Query Match	Query Match Length DB	DB	ID	Description		Pred. No.
1	- 67	3.5	7218	-	US-08-232-	Sequence 14, Ap	Applicati	1.19e-24
°	44	2.3	7218	-	US-08-232-	14	Applicati	2.87e-11
က	34	7.8	215	-	US-08-238-	'n	Applicatio	7.296-06
4	35	1.8	215	-	US-08-238-	'n	Applicatio	2.19e-06
S	56	1.4	74	7	PCT-US95-1	100	Applicat	7.10e-02
ω U	26	1.4	74	7	PCT-US95-1	94, 7	Applicati	7.10e-02
7	26	1.4	81	7	PCT-US95-1	92,	Applicati	7.10e-02
ထ	26	1.4	81	~	PCT-US95-1	86	Applicati	7.10e-02
σ	26	1.4	82	7	PCT-US95-1	97,	Applicati	7.10e-02
c 10	26	1.4	85	7	PCT-US95-1	97,	Applicati	7.10e-02
11	25	1.3	99	н	US-08-471-	144,	Applicat	2.09e-01
12	25	1.3	68	Н	US-07-977-	243,	Applicat	2.09e-01
13	25	1.3	69	-	US-08-471-	142,	Applicat	2.09e-01
14	25	1.3	74	~	PCT-US95-1	94, A	Applicati	2.09e-01
15	25	1.3	74	~	PCT-US95-1	100,	Applicat	2.09e-01
16	25	1.3	75	~	PCT-US95-1	99,	Applicati	2.09e-01
c 17	25	1.3	75	7	PCT-US95-1	99,	Applicati	2.09e-01
18	25	1.3	81	~	PCT-US95-1	Sequence 98, Ap	Applicati	2.09e-01
6	25		2	C	DCT-11595-1	9	Annitosti	2 000-01

2.09e-01 2.09e-01 2.09e-01 1.70e-00 6.02e-01 1.70e+00 6.02e-01 1.70e+00	1.70e+00 1.70e+00 1.70e+00 1.70e+00 1.70e+00 1.70e+00	1.70e+00 1.70e+00 1.70e+00 1.70e+00 1.70e+00 6.02e-01 1.70e+00
Sequence 1, Applicatio Sequence 2, Applicatio Sequence 3, Applicatio Sequence 145, Applicati Sequence 145, Applicati Sequence 147, Applicati Sequence 144, Applicati Sequence 144, Applicati Sequence 143, Applicat	120, 23, 8, 25, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8,	Sequence 11, Applicati Sequence 11, Applicati Patent No. 5480796. Patent No. 5171840. Patent No. 5457037. Sequence 1, Applicatio Patent No. 5457037.
US-08-273- PCT-US95-0 PCT-US93-0 PCT-US93-0 PCT-US95-1 US-08-471- US-08-471- US-08-471-	US-08-133- US-08-209- PCT-US94-0 US-08-300- US-07-807- US-08-299- 5480796-8 5171840-8	US-07-807- US-08-299- 5480796-1 5171840-1 5457037-2 US-07-872- 5457037-4
пипинина		
242 1004 1386 1611 655 66	84 84 84 225 1404 1404	1640 1640 2061 2061 2253 2454 3336
00000000000000000000000000000000000000		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20 20 20 20 20 20 20 20 20 20 20 20 20 2	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	33 30 30 30 30 30 30 30 30 30 30 30 30 3
000000000		

## ALIGNMENTS

```
COUNTRY: USA

ZIP: 22313-0299

COMPUTER READABLE FORM:
MEDIUM TYPE: Eloppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/232,463
FLING DATE:
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/07/935,313
                                             Sequence 14, Application US/08232463
Sequence 14, Application US/08232463
Sequence 14, Application US/08232463
Septent No. 5670367
GENERAL INFORMATION:
APPLICANT: DORNER, F.
APPLICANT: SCHEIFLINGER, F.
APPLICANT: FALKNER, F. G.
TITLE OF INVENTION: RECOMBINANT FOWLPOX VIRUS
NUMBER OF SEQUENCES: 52
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 26-AUG-1991
ATTORNEY/AGENT INFORMATION:
NAME: BENT, Stephen A.
REGISTRATION NUMBER: 39,768
REFERENCE/DOCKET NUMBER: 30472/114 IMMU
TELEPHONE: (703)836-9300
TELEPHONE: (703)836-9300
          US-08-232-463-14 STANDARD; DNA; UNC; 7218 BP.
                                                                                                                                                                           ADDRESSEE: Foley & Lardner
STREET: 1800 Diagonal Road, Suite 500
CITY: Alexandria
STATE: VA
                                                                                                                                                                                                                                                                                                                                                                                                              EP 91 114 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEX: 899149
INFORMATION FOR SEQ ID NO: 14:
                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: APPLICATION NUMBER:
RESULT
```

```
ZIP: 94105-1493
COMPUTER READABLE FORM:
                                                                                                                                                          IMMEDIATE SOURCE:
                                                                                                                                        STRANDEDNESS:
 FILING DATE:
                                                                                                                                                  TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                  Сp
                                                                                                                                                                                                                                                                                                                                                                                                                   g
 22222222222222222222222222
                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                           ď
                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1101 CCTACTCAGCTCTCTGAGGCCCAGCCTGGCGCTCGGAGGCTCGTGGAGACCATCTT 1160
                                                                                                                                                                                                                                                                                                                    981 GGGCCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTCCCCCGGTGTA 1040
                                                                                                                                                                                              1161 TCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCGCCTGCCCAGCG 1220
                                                                                                                                                                                                                                                                                                        921 GGAGGGTGGCGTCTCTGGCACGCGCCACTCCCATCCGTGGGCCGCCAGCACCACGC 980
                                                                                                     Gaps
                                                                                                    ö
                                                     CLONE: pT2gpt-F1s
SEQUENCE 7218 BP; 1944 A; 1491 C; 1486 G; 1929 T; 368 OTHER.
                                                                                3.5%; Score 67; DB 1; Length 7218; 2.4%; Pred. No. 1.19e-24; rvative 211; Mismatches 153; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: Patentin Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/232,463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FOWLPOX VIRUS
                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
APPLICANT: DORNER, F.
APPLICANT: SCHEIFLINGER, F.
APPLICANT: FALKNER, F. G.
TITLE OF INVENTION: RECOMBINANT FOWLPOX VI
NUMBER OF SEQUENCES: 52
CORRESPONDENCE ADDRESS:
ADDRESSEE: Foley & Lardner
STREET: 1800 Diagonal Road, Suite 500
CITY: Alexandria
                                                                                                                                                                                                                                                                                                                                                                                        л 2
US-08-232-463-14 STANDARD; DNA; UNC; 7218 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/07/935,313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 14, Application US/08232463
Sequence 14, Application US/08232463
Patent No. 5670367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ZIP: 22313-0299
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-
SEQUENCE CHARACTERISTICS:
LENGTH: 7218 base pairs
                 TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                    9; Conservative
                                                                                                                                                                                                                                                                                                                                                       1281 CGGGGTGCTCCTC 1293
                                                                                                                                                                                                                                                                                                                                            1415 YYYYYYYYYYY 1427
                                    TOPOLOGY: linear IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          USA
                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STATE:
                                                                                                                                                                                                                                                                                                                                                                                                            XXXXXX
                                                                                                      datches
                                                                                                                      a
a
                                                                                                                                                          d
                                                                                                                                                                                              g
                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                    ·ò
                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                888888888
                                                                                                                                        ò
                                                                                                                                                                           ô
                                                                                                                                                                                                                à
                                                                                                                                                                                                                                 셤
```

```
TITLE OF INVENTION: PLANT INHIBITORS OF FUNGAL TITLE OF INVENTION: POLYGALACTURONASES AND THEIR USE TO CONTROL FUNGAL DISEA NUMBER OF SEQUENCES: 24
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1850 CTCTTCAAGTGCTGTCTGATTCCAATGCTTTGCAACTTGCTCCAGACACTCTCCGGTAG 1791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1730 TCGACGACGTACACACTCATCAGCCAGGGAACTTGGCCAGGATCTCCTCACGCAGA 1671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1610 CGCACGCTCATCTTCCACGTCAGCTCCTGCAGCGAGAGCTTGGCATGCTTCCCC 1557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                 CLONE: PIZGPt-F1s
SEQUENCE 7218 BP; 1944 A; 1491 C; 1486 G; 1929 T; 368 OTHER
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 7218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 2.3%; Score 44; DB 1; Length 7218 Best Local Similarity 0.8%; Pred. No. 2.87e-11; Matches 3; Conservative 196; Mismatches 155; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE: Townsend and Townsend Khourie and Crew STREET: Steuart Street Tower, One Market Plaza CITY: San Francisco STATE: California
                                                                                                      REFERENCE/DOCKET NUMBER: 30472/114 IMMU TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-238-163-5 STANDARD; DNA; UNC; 215 BP
EP 91 114 300.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 5, Application US/08238163
Sequence 5, Application US/08238163
Patent No. 5569830
GENERAL INFORMATION:
APPLICANT: LABANUETT, Alan
APPLICANT: LABANUETT, JOHN M.
APPLICANT: POWELL, Ann
APPLICANT: STOTZ, Henrik
                                                                                   29,768
                                                                                                                                                                                TELEX: 899149
INFORMATION FOR SEQ ID NO: 14:
SEQUENCE CHARACTERISTICS:
LENGTH: 7218 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                          14:
                  FILING DATE: 26-AUG-1991
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                    TELEPHONE: (703)836-9300
TELEFAX: (703)683-4109
                                                            NAME: BENT, Stephen A. REGISTRATION NUMBER: 2
                                                                                                                                                                                                                                                                                                                     single
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                        linear
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1495 GGCCTGGGGGCACCAGCCGCAGGCAGCCGCAAGCCGTACACCTGCCAGGGGC 1436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66 YNYGGNNVGAAKTHYYTHTNVSGADSKTVTDSYNASGTSSSNGGTDGNRSGADSYGSSKT 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  126 AMTSRNRTGKTANNAVDSRNMGDASVGSDKNTKKHAKNSADGKVGSKNNGDRNNRYGTGT 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6 MSSSSVVSRTASCUDKAKKDGNTTSSWTTDCCNRTWGVCDTDTTYRVNNDSGHNKYSSAN 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT CYLORY
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES: 103
CORRESPONDENCE ADDRESS:
ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
CITY: New York
STATE: New York
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: misc_feature
LOCATION: 1..215
OTHER INFORMATION: /standard_name= "Deduced amino acid
OTHER INFORMATION: sequence of PGIP from bean."
SEQUENCE 215 BP; 15 A; 8 C; 25 G; 26 T; 141 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 35; DB 1; Length 215;
Pred. No. 2.19e-06;
76; Mismatches 95; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                          ACTION NUMBER: US/08/238,163
PELING DATE: 03-MAY-1994
CLASSIPICATION: 80
ATTONNEY/AGENT INFORMATION:
NAME: Bastian, Revin L.
REGISTATION NUMBER: 34,774
REFERENCE/DOCKET NUMBER: 2307E-540
TELECOMMUNICATION INFORMATION:
TELEFAX: (415) 543-9600
TELEFAX: (415) 543-9600
TELEFAX: (415) 543-9600
TELEFAX: (415) 543-5043
INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTER/STICS:
LENGTH: 215 base pairs
TYPE: nucleic acid
STRANDENESS: 21ngle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        T 5
PCT-US95-11934-100 STANDARD; DNA; UNC; 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: PCT/US95/11934
FILING DATE: 20-SEP-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 100, Application PC/TUS9511934 Sequence 100, Application PC/TUS9511934 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
              CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 1.8%;
Best Local Similarity 13.2%;
Matches 26; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1435 TGCTGTGCTGGCGAGC 1419
                                                                                                                                                                                                                                                                                                                                                                                                           MOLECULE TYPE: protein FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            186 KSNVSNNCGGGNKRDVS 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ZIP: 10036
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy of
                                                                                                                                                                                                                                                                                                                                                                                        unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 2 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
              888888888888888888888888888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 5, Application US/08238163
Sequence 5, Application US/08238163
Sequence 5, Application US/08238163
Patent No. 5569830
GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: BONNET, Alan
APPLICANT: PARVITCH, John M.
APPLICANT: PARVITCH, John M.
APPLICANT: FOURTH PLANT
TITLE OF INVENTION: PLANT INHIBITORS OF FUNGAL
TITLE OF INVENTION: PLANT INHIBITORS OF FUNGAL
NUMBER OF SEQUENCES: 24
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  83 HTNVSGADSKTVTDSYNASGTSSSNGGTDGNRSGADSYGSSKTAMTSRNRTGKTANNAVD 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            143 SRNMGDASVGSDKNTKKHAKNSADGKVGSKNNGDRNNRYGTGTKSNVSNNCGGGNKRDVS 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: misc_feature
LOCATION: 1..215
OTHER INFORMATION: Standard_name= "Deduced amino acid
OTHER INFORMATION: Sequence of PGIP from bean."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE: Townsend and Townsend Khourie and Crew STREET: Steuart Street Tower, One Market Plaza CITY: San Francisco STATE: California CONNTRY: US
ZIP: 94105-1493
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC Compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 1.8%; Score 34; DB 1; Length 215; Best Local Similarity 12.9%; Pred. No. 7.29e-06; Matches 17; Conservative 56; Mismatches 59; Indels
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYETEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/238,163
FILING DATE: 03-MAY-1994
CLASSIFICATION NUMBER: 03-MAY-1994
ATTORNEY/AGENT INFORMATION:
NAME: Bastian, Rev'n L.
REGISTRATION NUMBER: 2307E-540
TELEPHONE: (415) 543-9600
TELEPHORE: (415) 543-9600
TELEPHONE: (415) 543-9600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OTHER INFORMATION: Sequence of PGIP from bean." SEQUENCE 215 BP; 15 A; 8 C; 25 G; 26 T; 141 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          77 4
US-08-238-163-5 STANDARD; DNA; UNC; 215 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY: unknown
MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         203 SYANNKCCGSSC 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ::| :||::|
250 GCACGGCCGCC 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
```

ò g g

ö

ò

US-08-951-733-13-02.rni

```
Query Match 1.4%;
Best Local Similarity 11.4%;
Matches 8; Conservative
                                                                                                                  : : |||||
480 cccccAcGcc 471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         480 CCCCACGCC 471
                                                                                                      63 BNNBNACGCC 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            70 BNNBNACGCC 79
                                                                                                                                                           RESULT
ID PC
                                                                                Сp
                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                    0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Cytogen Corporation
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From
TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES: 103
CORRESSONDENCE ADDRESS:
ADDRESSEE: Pennie & Edmonds
STREEF: 1155 Avenue of the Americas
                                                                                                                                                                                          Query Match 1.4%; Score 26; DB 2; Length 74; Best Local Similarity 10.3%; Pred. No. 7.10e-02; Matches 7; Conservative 20; Mismatches 41; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDION TYPE: FIDPPY disk
COMPUTER: IBM PC COMPATIBLE
COMPUTER: IBM PC COMPATIBLE
COMPUTER: IBM PC COMPATIBLE
COMPUTER: BATTER: PC-DOS/MS-DOS
SOFTWARE: PATENTIN PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/11934
FILING DATE: 20-SEP-1995
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: MASTOCK, S. Leslie
REGISTRATION NUMBER: 18,872
REFERENCE/POCKET NUMBER: 1101-196-228
TELEFPAX: (212) 790-9090
TELEFRAX: (212) 790-9090
TELEFRAX: (212) 790-9090
TELEFRAX: (212) 790-9090
TELEFRAX: (614) PENNIE
INFORMATION FOR SEQ ID NO: 94:
SEQUENCE CHARACTERISTICS:
LENGTH: 74 base pairs
TYPE: NUCLEIC acid
STRANDEDNISS: single
ATTORNEY/AGENT INFORMATION:
NAME: Misrock, S. Leslie
REGISTRATION NUMBER: 1101-196-228
REFERENCE/DOCKET NUMBER: 1101-196-228
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 869-9741/8864
TELEFAX: (212) 869-9741/8864
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 100: SEQUENCE CHARACTERISTICS:
LENGTH: 74 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOPOLOGY: linear MOLECULE TYPE: DNA (genomic) SEQUENCE 74 BP; 3 A; 4 C; 3 G; 1 T; 63 OTHER.
                                                                                                                                                          MOLECULE TYPE: DNA (genomic)
SEQUENCE 74 BP; 6 A; 6 C; 1 G; 1 T; 60 OTHER
                                                                                                                                                                                                                                                                                                                                        T 6
PCT-US95-11934-94 STANDARD; DNA; UNC; 74 BP.
                                                                                                                                                                                                                                                                                                                                                                                 Sequence 94, Application PC/TUS9511934 Sequence 94, Application PC/TUS9511934 GENERAL INFORMATION:
                                                                                                                          TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ZIP: 10036
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CITY: New York
STATE: New York
COUNTRY: USA
                                                                                                                                                                                                                                                                                                     481 GCCCCCAC 474
                                                                                                                                                                                                                                                                                 63 VNNACCAC 70
                                                                                                                                                                                                                                                                                                                                                              XXXXX
                                                                                                                                                                                                                                                                                                                                        RESULT
   셤
                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                     S
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           540 GAGCGCGCAGCGTGCCAGCAGGTGAACCAGCACGTCGTCGCCCACGCGGGGGCAGCAGCAG 481
                                                                                                                                                       540 GAGCGCGCAGCGTGCCAGCAGGTGAACCAGCACGTCGTCGCCCCACGCGGCGCAGCAGCAG 481
                                                                                                    APPLICATE CYTOGON COMPORATION
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From
TITLE OF INVENTION: Peptide Libraries
TITLE OF INVENTION: Peptide Libraries
CORRESPONDENCES: 103
CORRESPONDENCE ADDRESS:
ADDRESSE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
CITY: New York
STATE: New York
COUNTRY: USA
ZIP: 10036
                                                     ô
Score 26; DB 2; Length 74;
Pred. No. 7.10e-02;
19; Mismatches 43; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 26; DB 2; Length 81;
Pred. No. 7.10e-02;
19; Mismatches 43; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TOPOLOGY: linear MOLECULE TYPE: DNA (genomic)
SEQUENCE 81 BP; 3 A; 5 C; 6 G; 4 T; 63 OTHER.
                                                                                                                                                                                                                                                                                                                                   T 7
PCT-US95-11934-92 STANDARD; DNA; UNC; 81 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          T 8
PCT-US95-11934-98 STANDARD; DNA; UNC; 81 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1101-196-228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: PCT/US95/11934 FILLING DATE: 20-SEP-1995 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 92, Application PC/TUS9511934 Sequence 92, Application PC/TUS9511934 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATTORNEY AGENT INFORMATION:
NAME: Misrock, S. Leslie
REGISTRATION UNDBER: 18,872
REFERENCE/DOCKET NUMBER: 1101-:
TELECOMMUNICATION INFORMATION:
TELEPAN: (212) 790-9090
TELEPAN: (212) 869-9741/8864
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 92:
SEQUENCE CHARACTERISTICS:
LENGTH: 81 base pairs
TYPE: nucleic acid
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ouery Match 1.4%;
Best Local Similarity 11.4%;
Matches 8; Conservative
```

XXXXXX

US-08-951-733-13-02.rni

```
158 TGGGGCCCCAGGGCTGCGGCGCGCGGGGGCCCGGCGCTTTCCGCGCGCTGG 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 97, Application PC/TUS9511934
Sequence 97, Application PC/TUS9511934
GENERAL INFORMATION:
APPLICANT: Cytogen Corporation
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From
TITLE OF SEQUENCES: 103
CORRESPONDENCE ADDRESS:
ADDRESSE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
CITY: New York
STATE: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
1.4%; Score 26; DB 2; Length 82;
Best Local Similarity 15.2%; Pred. No. 7.10e-02;
Matches 12; Conservative 20; Mismatches 47; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY: NEW JOIN
COUNTRY: USA
ZIP: 10036
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OMFATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/11934
FILING DATE: 20-SEP-1995
CLASSIFICATION:
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
FILING DATE: 20-SEP-1995
                                                                                                                                      FILLING ALL CONTROL CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: MISTOCK, S. Leslie
REGISTRATION NUMBER: 1101-196-228
REFERENCE/DOCKET NUMBER: 1101-196-228
TELEPHONE: (212) 790-9990
TELEPHONE: (212) 869-9741/8864
TELERA: (6141 PENNIE
INFORMATION FOR SEQ ID NO: 97:
SEQUENCE CHARACTERISTICS:
LENGTH: 82 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY: linear MOLECULE TYPE: DNA (genomic) SEQUENCE 82 BP; 1 A; 2 C; 10 G; 8 T; 61 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .T 10
PCT-US95-11934-97 STANDARD; DNA; UNC; 82 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTORNEY/AGENT INFORMATION:
NAME: Misrock, S. Leaslie
REGISTRATION NUMBER: 18,872
REFERENCE/DOCKET NUMBER: 1101-196-228
RELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
TELEFAX: (212) 869-9741/8864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  62 NNBNNBNNBGGTTGTG 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
     8888888888888888888888888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Cytogen Corporation
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From
TITLE OF INVENTION: Peptide Libraries
TITLE OF INVENTION: Peptide Libraries
CORRESPONDENCE: 103
CORRESPONDENCE ADDRESS:
ADDRESSE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
CITY: New York
STREET: New York
COUNTRY: USA
ZIP: 10036
                                 Sequence 98, Application PC/TUS9511934
Sequence 98, Application PC/TUS9511934
GENERAL INFORMATION:
APPLICANT: CYPEROFORM COMPORTION
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES: 103
CORRESPONDENCE ADDRESS:
ADDRESSE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ouery Match 1.4%; Score 26; DB 2; Length 81; Best Local Similarity 14.3%; Pred. No. 7.10e-02; Matches 10; Conservative 19; Mismatches 41; Indels
                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUW TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/11934
FILING DATE: 20-SEP-1995
CLASSIFICATION:
NAME: MISTOCK, S. LESIE
REGISTRATION NUMBER: 18,872
REGISTRATION NUMBER: 1101-196-228
REGISTRATION NUMBER: 1101-196-228
TELEPHONE: (212) 790-9990
TELEPHONE: (212) 790-9990
TELEFN: (6141 PENNIE
INFORMATION FOR SEQ ID NO: 98:
SEGUENCE CHRACTERISTICS:
LENGTH: 81 base pairs
wwher: ninfleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOLECULE TYPE: DNA (genomic)
SEQUENCE 81 BP; 6 A; 6 C; 4 G; 5 T; 60 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          л 9
PCT-US95-11934-97 STANDARD; DNA; UNC; 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 97, Application PC/TUS9511934 Sequence 97, Application PC/TUS9511934 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                STREET: 1155 Aver
CITY: New York
STATE: New York
COUNTRY: USA
2IP: 10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1455 GCCGTACACC 1446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61 VNNVNNVNNV 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  XXXXXX
```

გ g

셤

Gaps

ဖ

```
පු
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                          ö
                                                                                                                                                                                                          325 ICTGCAGCACTCGGGCCACCAGCTCCTTCAGGCAGGACACCTGGCGGAAGGAGGGGGGCGG 266
                                                                                                                                                                                  0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Kay, B. K.
APPLICANT: Fowlkes, D. M.
TITLE OF INVENTION: Totally Synthetic Affinity Reagents
NUMBER OF SEQUENCES: 166
CORRESPONDENCE ADDRESS:
ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STREE: 11.2.

CITY: New York
CITY: New York
COUNTR: U.S.A.
ZIP: 10036-7711
COMPUTER: READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/471,052A
FILING DATE: 06-JUNE-1995
FILING DATE: 06-JUNE-1995
                                                                                                                              Score 26; DB 2; Length 82;
Pred. No. 7.10e-02;
20; Mismatches 45; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 25; DB 1; Length 66;
Pred. No. 2.09e-01;
18; Mismatches 37; Indels
                                                                            TOPOLOGY: linear MOLECULE TYPE: DNA (genomic) SEQUENCE 82 BP; 1 A; 2 C; 10 G; 8 T; 61 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MOLECULE TYPE: DNA
SEQUENCE 66 BP; 2 A; 3 C; 4 G; 2 T; 55 OTHER.
                                                                                                                                                                                                                                                                                                   .T 11
US-08-471-052A-144 STANDARD; DNA; UNC; 66 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTORNEY/AGENT INFORMATION:
NAME: Misrock, S. Leslie
REGISTATION NUMBER: 18,872
REFERENCE/DOCKET NUMBER: 1101-179
TELECOMMUNICATION INFORMATION:
TELEPHONE: 212 790-9090
TELERAX: 212 869-8864/9741
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 144:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                     Sequence 144, Application US/08471052A Sequence 144, Application US/08471052A Patent No. 5625033 GENERAL INFORMATION:
TELEX: 66141 PENNIE
INFORMATION FOR ESQ ID NO: 9
SEQUENCE CHARACTERISTICS:
LENGTH: 82 base pairs
TYPE: Nucleic acid
STRANDEDNES: single
TOPOLOGY: linear
                                                                                                                               0.0 Natch 1.4%;
Best Local Similarity 13.3%;
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 1.3%;
Best Local Similarity 11.3%;
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                   66 NBNNBNNBGGTTGTG 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LENGTH: 66 bases
                                                                                                                                                                                                                                                                                                                               XXXXXX
                                                                                                                                                                                                                                                                                                   8888888888
                                                                                                                                                                                   셤
                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                             ဌ
```

유

```
CENERAL INFORMATION:
APPLICANT: Prockop, Darwin J.
APPLICANT: Prockop, Leena
APPLICANT: Milliams, Charlene J.
APPLICANT: Hopkinson, Ian
APPLICANT: Hopkinson, Ian
APPLICANT: Ahmad, Nilofer Nina
TITLE OF INVENTION: PREDISPOSITION FOR OSTEOARTHRITIS
NUMBER OF SEQUENCES: 261
CORRESPONDENCE ADDRESS:
ADDRESSE: Woodcock, Washburn, Kurtz, Mackiewicz & No. 5558988ris
STREET: One Liberty Place, 46th floor
CITY: Philadelphia
STATE: PA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              253 CGGCCCCCCCCCCCCCTTCCGCCAGGTGTCCTGCCTGAAGG 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11 GCCCGCCGCCCGCCCGCCGCCGCCGCCAGGAGCCCTTCTTGAGG 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 25; DB 1; Length 68;
Pred. No. 2.09e-01;
0; Mismatches 12; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ANTI-SENSE: NO
SEQUENCE 68 BP; 7 A; 38 C; 17 G; 6 T; 0 OTHER.
                                                                                                     л 12
US-07-977-284а-243 STANDARD; DNA; UNC; 68 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WORDPERFECT 5.1
CURRENT APPLICATION DATA:
APPLICATION UNBER: US/07/977,284A
FILING DATE: 13-NOV-1992
CLASSIFICATION: 435
PRIOR APPLICATION ATA:
APPLICATION UNBER:
ELLING DATE:
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LT 13
US-08-471-052A-142 STANDARD; DNA; UNC; 69
XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTORNEY AGENT INFORMATION:
NAME: DeLuca, Mark
REGISTATION NUMBER: 33,229
REFERENCE/DOCKET NUMBER: TJU-0697
TELECOMMUNICATION INFORMATION:
TELEPHONE: (215) 568-3100
TELEPHONE: (215) 568-3439
INFORMATION FOR SEQ ID NO: 243:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 1.3%;
Best Local Similarity 75.5%;
Matches 37; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 68
TYPE: NUCLEIC ACID
STRANDEDNESS: SINGLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: LINEAR
TI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                          19103
                                                         1492 GG 1493
                                       64 GG 65
                                                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A D
```

```
Sequence 100, Application PC/TUS9511934
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES: 103
CORRESPONDENCE ADDRESS:
CORRESPONDENCE ADDRESS:
CORRESPONDENCE ADDRESS:
CORRESPONDENCE ADDRESS:
CORRESPONDENCE ADDRESS:
CORRESPER: New York
COUNTRY: New York
COUNTRY: New York
COMPUTER: New York
COMPUTER: New York
COMPUTER: EMP PC Compatible
COMPUTER: EMP PC Compatible
COMPUTER: DatentIn Release #1.0, Version #1.30
CURRENT APPLICATION NUMBER: PCT/US95/11934
FILING DATE: 20-SEP-1995
CURRENT APPLICATION NUMBER: 18,872
REFERENCE/DOCKET NUMBER: 1101-196-228
CEASSIFICATION NUMBER: 1101-196-228
TELEPAN: (212) 869-9741/8864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 25; DB 2; Length 74;
Pred. No. 2.09e-01;
20; Mismatches 43; Indels
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPPERTING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/11934
FILING DATE: 20-SEP-1995
                                                                                                                                    ELLALIN.

ATTORNEY/AGENT INFORMATION:
NAME: Misrock, S. Leslie
REGISTRATION NUMBER: 18,872
REFERENCE/DOCKET NUMBER: 1101-196-228
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 869-9741/8864
TELEFAX: (212) 869-9741/8864
TELEFX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 94:
SEQUENCE CHARACTERISTICS:
LENGTH: 74 base pairs
LENGTH: 74 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
SEQUENCE 74 BP; 3 A; 4 C; 3 G; 1 T; 63 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .T 15
PCT-US95-11934-100 STANDARD; DNA; UNC; 74 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 1.3%;
Best Local Similarity 8.7%;
Matches 6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        : |||||
276 CTTCCGCCA 284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  65 NBNACGCCA 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
           0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 94, Application PC/TUS9511934
Sequence 94, Application PC/TUS9511934
GENERAL INFORMATION:
APPLICANT: CATORNIC Antigen Corporation
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES: 103
CORRESPONDENCE ADDRESS:
ADDRESSE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
                                                                               GENERAL INFORMATION:
APPLICANT: Kay, B. K.
APPLICANT: Kay, B. K.
APPLICANT: Kay, B. K.
APPLICANT: Forly S. M.
TITLE OF INVENTION: Totally Synthetic Affinity Reagents
ONDRESSEE: 166
CORRESPONDENCE ADDRESS:
ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
CITY: New YORK
COUNTRY: U.S.A.
ZIP: 10136-271
COMPUTER: New YORK
COUNTRY: U.S.A.
ZIP: 10136-271
COMPUTER: Pachalle FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: Patentin Release #1.0, Version #1.25
COMPUTER: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATE: 05-UNNE-1995
CLASSIFICATION STATE: 18,872
REPERENCE/DOCKET NUMBER: 1101-179
TELECOMMUNICATION INFORMATION:
NAME: Misrock, S. Leslie
RECISTRATION NUMBER: 1101-179
TELECOMMUNICATION INFORMATION:
NAME: Misrock, S. Leslie
RECISTRATION NUMBER: 1101-179
TELECOMMUNICATION INFORMATION:
TELEPHONE: 212 790-9090
TELEPHONE: 212 790-9090
TELEPHONE: 212 790-9090
TELEPHONE: 212 790-9090
TELEPHONE: SEQ ID NO: 142:
SEQUENCE CHARACTERISTICS:
LENGTH: 69 bases
TUPP: nucleic acid
CTANDONESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 25; DB 1; Length 69;
Pred. No. 2.09e-01;
18; Mismatches 37; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MOLECULE TYPE: DNA
SEQUENCE 69 BP; 2 A; 4 C; 6 G; 2 T; 55 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .T 14
PCT-US95-11934-94 STANDARD; DNA; UNC; 74 BP.
                       Sequence 142, Application US/08471052A Sequence 142, Application US/08471052A Patent No. 5625033 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 1.3%;
Best Local Similarity 11.3%;
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CITY: New York
STATE: New York
COUNTRY: USA
ZIP: 10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1492 GG 1493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    67 GG 68
```

XXXXXX

ò 셤

```
CC INFORMATION POR SEQ ID NO: 100:
CC SEQUENCE CHARACTERISTICS:
CC SEQUENCE CHARACTERISTICS:
CC STRANDEDNESS: single
CC STRAND
```

Search completed: Thu Dec 24 15:09:57 1998 Job time: 171 secs.

######################################	em_pn 12:em_p1 n 19:gb_om 20:gb_ov 2 25:gb_pr1 30:gb_sts 31:gb_sy	to have a	ig i	0.000 0.000 0.000 7.566 7.566 11.71	) <del></del>
**************************************	/ :em_com 8:em_cor 9:em_cor 10:em_pat 11:em_r 13:em_ro 14:em_vi genbank107 15:gb_ba1 16:gb_ba2 17:gb_htg 18:gb_in 15 21:gb_pat 22:gb_ph 23:gb_pl1 24:gb_pl2 25 26:gb_pr2 27:gb_pr3 28:gb_ro 29:gb_st 30 32:gb_un 33:gb_vi	Mean 10.599; Variance 5.047; scale 2.100 No. is the number of results predicted by chance	s greater than or equal to the score of the result is derived by analysis of the total score distribut SUMMARIES Query over Match Length DB ID Description	4015 27 AF015950 4027 27 AF018167 8960 31 AF043739 3369 28 AF073311 7218 21 166494 74371 26 AC005369	30 3.3 215 21 128278 30 3.3 74371 26 AC005369 29 3.2 15807 15 MED72662 28 3.1 215 21 128278

```
The figure of the following the figure of the following the following the figure of the following figure of the fi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4015 bp mRNA PRI 16-AUG-1997 telomerase reverse transcriptase (hTRT) mRNA, complete
     99.679-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
99.674-6-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
  Rattus rattus protein 3CH134/Cil00 PrPase-ox R. norvegicus mRNA for Sequence 14 from paten H. sapiens mRNA for Uli R. norvegicus HISHR mRN eryM-malonyl-coenzyme Saccharopolyspora eryt HOMO sapiens mRNA for HOMO sapiens mRNA for
                                                                                                                                                                                                                          Volvox carteri acetola
Rat calcium channel al
Rattus norvegicus pore
Human cosmid LUCALG,
Amycolatopsis mediterr
*** SEQUENCING IN PROG
*** SEQUENCING IN PROG
*** SEQUENCING IN PROG
Rhodobacter capsulatus
Homo sapiens Chromosom
*** SEQUENCING IN PROG
Sequence 142 from pate
Sequence 142 from pate
Sequence 125 from pate
Sequence 120 from pate
Corynebacterium glutem
Mouse histidase locus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hepatitis E virus ORFI
Hepataitis E virus Com
C. elegans cosmid K12H
Amycolatopsis mediterr
Amycolatopsis mediterr
Homo sapiens Chromosom
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pseudomonas aeruginosa
Bombyx mori L1Bm DNA,
  RRU02553
81478
RNRNASP
166494
166494
166494
RRSNAULI4
RNHISHR
568884
568884
568884
ABO06713
APO44920
APO884
APO884
APO884
APO894
APO896
APO86
APO86
APO86
APO86
APO86
APO86
APO86
APO86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HPEGENSA
HPCEGENOM
CELK12H4
AMM223012
AF040570
HUAC004787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        141362
165426
161313
CGAJ4934
MUSHAL
AF051692
AB002270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /map="5p"
/dev_stage="embryo"
/chromosome="5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1. .4015
/gene="hTRT"
56. .3454
       AF015950 4
Homo sapiens t
cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AF015950.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            human.
     é
  13
       U
```

/gene="hTRT" /codon_start=1

```
~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
   2569
                                                                             2629
                                                                                                                                                        2689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                            셤
                                                                                                                                                    g
                                                                                                                                                                                           ò
                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                             ò
   용
                                      ò
                                                                                                                 ò
                                                                                                                                                                                                                                                                   à
                                                                                     LUDGARO CELLI LONG LICH Y LICHAROS SORMALIAN VOLUTARIAN VOLUTARIAN VIRIARIAN LA LICHARO CERTANIA SORDIAN VIRIARIAN VIRIARIAN LA LICHARO CERTANIA SORDIANIA LA LICHARO CERTANIA SORDIANIA LA PORARREGGANGANO CERTANIA SORDIANIA REPERATEGENE SORDIANIA REPERATEGENE SORDIANIA SORDIANIA REPERATEGENE SORDIANIA SORDIANIA SORDIANIA SORDIANIA SORDIANIA SORDIANIA SORDIANIA SORDIANIA SORDIA S
/product="telomerase reverse transcriptase"
/db_xref="PID:92330017"
/translation="MPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLVQRGDP
                                                      AAFRALVAQCLVCVPWDARPPPAAPSFRQVSCLKELVARVLQRLCERGĀKNVLĀFGFĀ
LLDGARGGPPEAFTTSVRSYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCALFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GICCAGACTCCGCTTCATCCCCAAGCCTGACGGCTGCGGCCGATTGTGAACATGGACTA 1968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGTCGTGGGAGCCAGAACGTTCCGCAGAGAAAAGAGGGGCCGAGCGTCTCACCTCGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAAGGCACTGTTCAGCGTGCTCAACTACGAGCGGGGGGCGCGCCCCGGGCTTCCTGGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTACTGCGTGCGTCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTTCAAGAGCCACGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 4015;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 901; DB 27;
Pred. No. 0.00e+00;
0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ch 100.0%;
1 Similarity 100.0%;
901; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                   ø
                                                                                                                                                                                                                                                                                                                                                                                                               663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local
                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                គ្ន
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
```

```
//DOGUCT="TECOMETASE CALALYLIC SUBUNIT"
//DOGUCT="TECOMETASE CALALYLIC SUBUNIT"
//DOGUCT="TECOMETASE CALALYLIC SUBUNIT"
//DOGUCT="TECOMETASE CRAYSILESHYREVLPLATEVRILGPGGRRLVQRGDP
//LTAINSLALION="MPRAPRCRAYSILESHYREVLPLATEVRILGPGGRRKNYLAFGFA
ILLDGARGGPEDAFTISYRSYLPNTYTDALRGSGAWGLLLRRYGDDVLYHLLARCALFY
IVAPSCAYQVGGPPLYRLGAATQARPPPHASGPRRILGCERAWHSVRFAGAGVPLGLPA
PGARRRGGSASRSLPLRKPRRGAAFBFERFPVGGSWAHPCRTRGFSDRGFCVVSPA
RPAERATSLGALSGTRHSHPSVGROHHAGPPSTSRPPRRUDTPCPPVYAFTKFLYS
SGDKFQLIRPSFLLSSLRPSITGARRLYFTIFTLYS
SGDKFQLIRPSFLLSSLRPSTGARRLYFTIFTLYS
FLELLGHHAQCPFGTLLKAHVTPAAGVCAREKROGSVAAPEEEDTDPRRLV
ILRQHSSPWQVYGFVRACLRRLVPPGLMGSRHNERRFLRNTKKFISLGKHAKLSLQEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Meyerson,M., Counter,C.M., Eaton,E.N., Ellisen,L.W., Steiner,P.,
Caddle,S.D., Zlaugra,L., Beljersbergen,R.L., Davidoff,M.J., Liu,Q.,
Bacchetti,S., Haber,D.A. and Weinberg,R.A.
Direct Submission
Submitted (11-Aug-1997) Whitehead Institute for Biomedical
Research, Massachusetts Institute of Technology, Nine Cambridge
Center, Cambridge, MA 02142, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Meyerson, M., Counter, C.M., Eaton, E.N., Ellisen, L.W., Steiner, P., Caddle, S.D., Ziaugra, L., Beijersbergen, R.L., Davidoff, M.J., Liu, Q., Baccheti, S., Raber, D.A., and Weinberg, R.A.
hEST2, the putative human telomerase catalytic subunit gene, is purequiated in tumor cells and during immortalization
Cell 90 (4), 785-795 (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AF018167 4027 bp mRNA PRI 29-AUG-1997
Homo sapiens telomerase catalytic subunit (hEST2) mRNA, complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                      2748
                                                                                                                                                                               2699
                                                                                                                                                                                                                                                                                                                                                           2808
                                                                                                                                                                                                                                                                                                                                                                                                                     2819
                                                                                                                                                                                                                                                                                                                                                     CACGCTGCTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCG
                                                                                                                 GCGGGACGGCTGCTTCGTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCAC
                                                                                                                                                2640 GCGGGACGGCTCCTCCTGCGTTTGGTGATTTCTTGTTGTGACACCTCACCTCAC
                                                                                                                                                                                                                                   CCACGCGAAAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGT
                                                                                                                                                                                                                                                                  2700 CCACGCGAAAACCTICCTCAGGACCCTGGTCCCGAGGTGTCCCTGAGTATGGCTGCGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="member of reverse transcriptase class"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="human Ever Shorter Telomeres
/gene="hEST2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /db_xref="taxon:9606"
/chromosome="5"
/map="5p15.33"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1. .4027
/organism="Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="hEST2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .3455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .4027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AF018167
92347128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2809 T 2809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2820 T 2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cds.
```

```
ö
                                                                                                                                                                                                                                                                                         2269
                                                                                                                                                                                                                                                                                                                                                                 2399
                                                                                                                                                                                                                                                                                                                                                                                               2459
                                                                                                                                                                                                                                                                                                                                                                                                              2509
                                                                                                                                     GICCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTA 1969
                                                                                                                                             CGTCGTGGGAGCCAGAACGTTCCGCAGAAAAGAGGCCCGAGCGTCTCACCTCGAGGGT 2029
                                                                                                                                                                                                CTCTGTGCTGGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCTGTGTGCG
                                                                                                                                                                                                                                                                                                                                    GTACTGCGTGCGTCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGCATCAGGGGCAAGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CACGCTGCTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGGACGGGCTGCTCCTGCGTTTGGTGATTTCTTGTTGGTGACACCTCACCTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCACGCGAAAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGT
                                                                                                                                                                                                                                                                                                                                                  CTTCAAGAGCCACGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGC
                                                                                                                                                                                                                                                                                                                                                                               GAATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGT
                                                                                                                      ö
                                                                                                       Length 4027;
                                                                                                       Score 901; DB 27; Length 40 Pred. No. 0.00e+00; 0; Mismatches 0; Indels
                                                                                                       Query Match 100.0%;
Best Local Similarity 100.0%;
Matches 901; Conservative
                                                                                                        Query Match
                                                                                  BASE COUNT
ORIGIN
                                                                                                                                                  1920
                                                                                                                                                                                                                                                                                                                                                                                             2400
                                                                                                                                    1910
                                                                                                                                                                  1970
                                                                                                                                                                                1980
                                                                                                                                                                                                2030
                                                                                                                                                                                                              2040
                                                                                                                                                                                                                             2090
                                                                                                                                                                                                                                            2100
                                                                                                                                                                                                                                                           2150
                                                                                                                                                                                                                                                                         2160
                                                                                                                                                                                                                                                                                        2210
                                                                                                                                                                                                                                                                                                     2220
                                                                                                                                                                                                                                                                                                                     2270
                                                                                                                                                                                                                                                                                                                                    2280
                                                                                                                                                                                                                                                                                                                                                  2330
                                                                                                                                                                                                                                                                                                                                                                 2340
                                                                                                                                                                                                                                                                                                                                                                               2390
                                                                                                                                                                                                                                                                                                                                                                                                             2450
                                                                                                                                                                                                                                                                                                                                                                                                                           2460
                                                                                                                                                                                                                                                                                                                                                                                                                                           2510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2700
                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                     셤
                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                    ð
                                                                                                                                                                 ద
                                                                                                                                                                                 ö
                                                                                                                                                                                             윱
                                                                                                                                                                                                              ò
                                                                                                                                                                                                                             원
                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                      용
                                                                                                                                                                                                                                                                                                    ò
```

```
/product="telomerase catalytic subunit"
/db_xref="PID:g3023055"
/db_xref="PID:g3023055"
/db_xref="PID:g3023055"
/db_xref="PID:g3023055"
/db_xref="PID:g3023055"
/db_xref="PID:g3023055"
/db_xref="Telomerase"
/db_xref="Telo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FLELLGNHAQCPYGVLLKTHCPLRAAVTPAAGVCAREKPQGSVAAPEEEDTDPRRLVQ
LLRQHSSPWQVYGFVRACLRRLVPPGLWGSRHNERRFLRNTKKFISLGKHAKLSLQEL
TWRMSVRGCAWLRRSPGVGCVPAAEHRLREEILAKFLHWLMSVYVVELLRSFFYVTET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TFQKNRLFFYRKSVWSKLQSIGIRQHLKRVQLRELSEAEVRQHREARPALLTSRLRFI
PKPDGLRPIVNMDYVVGARTFRREKRAERLTSRVKALFSVLNYERARRPGLLGASVLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LDDIHRAMRTEVLRVRAQDPPPELYEVKVDVTGAYDTIPQDRLTEVIASIIKPQNTYC
YRKAVVQFAAHGHVRKAFKGHVSTLTDLQPYMRQYAHLGPTSPLRDAVVIEQSSSL
NEASSGLFOYFLRFWCHAVRIRGKSYVQCQGIPQGSILSTLLCSLCYGDMENKLFAG
IRRDGLLLRLVDDFLTATPHLYHAKTFLRTLYRGVPEXGCVVNLRKTVVNFPVSDEAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Direct Submission
Submitted (20-JAN-1998) Whitehead Institute, 9 Cambridge Center,
Cambridge, MA 02142, USA
Cambridge, MA 02142, USA
Location/Qualifiers
1. 0896
/organism="synthetic construct"
/db_xref="taxon:32630"
order(1. 1101,4606. 8960)
/note="mammalian expression vector; see GenBank Accession
Number U47120"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Trificial sequence.

1 (bases 1 to 8960)

Counter, C.M., Meyerson, M., Eaton, E.N., Ellisen, L.W., Caddle, S.D., Haber, D.A. and Weinberg, R.A.

Falomerase activity is restored in human cells by ectopic expression of hTERT (hEST2), the catalytic subunit of telomerase oncogene 16 (9), 1217-1222 (1998)

98187713

2 (bases 1 to 8960)

Counter, C.M., Meyerson, M., Eaton, E.N., Ellisen, L.W., Caddle, S.D., Haber, D., and Weinberg, R.A.
                                                                                                                                                                                                                                                                                                                                                                                                                           AF043739 8960 bp DNA SYN 05-APR-1998 Synthetic construct human telomerase catalytic subunit (hTERI/hESI2) mRNA and 3' Influenza A hemagglutinin tag, complete
GAACTIGCGGAAGACAGIGGIGAACTICCCIGIAGAAGACGAGGCCCIGGGIGGCACGGC_2809
                                        2760 GAACTTGCGGAAGACAGTGGTGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGGC 2819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Cloning vector pCI-neo"
/db_xxref="taxon:45772"
1102. .4542
/note="telomerase catalytic subunit hTERT/hEST2 mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /map="5p15.33"
1102. .4542
1208e="hThET/hEST2"
1147. .4605
/note="telomerase/reverse transcriptase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /chromosome="5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  synthetic construct
synthetic construct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sequence.
AF043739
93023054
                                                                                                                                                                2810 T 2810
                                                                                                                                                                                                                                                 2820 T
                                                                                                                                                                                                                                                                                                                                                                                       ٣
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sonrce
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                           LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
2750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                       οχ
                                                                                                                                                        g
                                                                                                                                                                                                                                                     ò
```

```
41.0%; s.larity 73.5%; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1. .3369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               959
                                                                                                                                                                           AF073311 3
Mus musculus t
AF073311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
667; Conser
                                                                                                                                                                                                                        93551846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               737
                                                                                       3900 T 3900
                                                                                                                    2820 T 2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local S
Matches 66
                                                                                                                                                                             LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                   SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                         NID
                             g
                                                                                     유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ద
 ó
                                                          ŏ
                                                                                                                    ò
GGTAFVQMPAHGLFPWCGLLLDTRTLEVQSDYSSYARTSIRASLTFNRGFKAGRNMRR
KEFGYLEKCHSLELDLQVNSLQTYGYTILLLQAYREHACVLQLPFHQQVMRNPT
FFLRYISDTASLCYSILLQAYREGAGGAAGPLESAVQWLCHQAFLLKLTRHRVT
YVPLLGSLRTAQTQLSRKLPGTTLTALEAAANPALPSDFKTILDYPPDYAGYPYD
                                                                                                                                                                                                                                                      ô
                                                                 4543. .4605
/note="engineered based on the epitope for the anti-influenza virus hemagglutinin monoclonal antibody 12CA5; similar to part of the Influenza A hemaglutinin gene sequence in GenBank Accession Number M29257"
/db_xref="taxon:32630"
a 2551 c 2484 g 2038 t 1 others
                                                                                                                                                                                                                                                                                                                                                                        2039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2459
                                                                                                                                                                                                                                                                                                1920 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTAACATGGACTA 1979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2100 CTCTGTGCTGGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCTGCGCGC 2159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3240 GGCCCAGGACCCGCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTAACA 3299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2220 CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAAACA 2279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3660 CACGCIGCTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCG 3719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3000 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTA 3059
                                                                                                                                                                                                                                                                                                                                         3060 CGTCGTGGGAGCCAGAACGTTCCGCAGAAAAGAGGGCCGAGCGTCTCACCTCGAGGGT 3119
                                                                                                                                                                                                                                                                                                                                                                                                   CTCTGTGCTGGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCG 3239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGCCCAGGACCCGCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGA 2219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGCATCAGGGGCAAGTCCTACGTCCAGGGGATCCCGCAGGGCTCCATCCTCTC 3659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2580 CACGCTGCTCTGCAGCCTGTGCTACGGCGACATGGAGCAACAAGCTGTTTGCGGGGATTCG 2639
                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                        1980 CGTCGTGGGGGGCCCAGAACGTTCCGCAGAAAAAAAAAGGGCCGAGCGTCTCACCTCGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                   2400 TCACCTGCAGGAGACCAGCCGCTGAGGGATGCCGTCGTCATCGAGCAGAGCTCCTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2520 GCGCATCAGGGGCAAGTCCTACGTCCAGGGGGATCCCGCAGGGCTCCATCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCACGCGAAAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3360 GTACTGCGTGCGTCGTTGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3420 CITCAAGAGCCACGICTCTACCIIGACAGACCICCAGCCGTACAIGCGACAGITCGIGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3480 TCACCTGCAGGAGACCAGCCGGCTGAGGGATGCCGTCGTCGTCGAGCAGAGCTCCTCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCGGGACGGGCTGCTTCGTTGGTGGATTTTCTTGTTGGTGACACCTCACCTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ó
                                                                                                                                                                                                                        Length 8960;
                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                     ;
0
                                                                                                                                                                                                                      Score 901; DB 31;
Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                     0; Mismatches
                                                                                                                                                                                                                        h
Similarity 100.0%;
                                                                                                                                                                                                                                                   901; Conservative
                                                          VPDYAG"
                                                                                                                                                                              ๙
                                                                                                                                                                                                                      Query Match
Best Local Si
Matches 901
                                                                           source
                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3540
                                                                                                                                                                                                                                                                                                                                                                                                   3120
                                                                                                                                                                                                                                                                                                                                                                                                                                                              3180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21.60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3780
                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                 ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                            윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        요
                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
```

```
/product="telomerase catalytic subunit"
/product="telomerase catalytic subunit"
/db xref="plb:g3551847"
/translation="WTRAPRCPAVESLRSRYEEWPLATFVRRLGPEGRRLVOPGDP
/translation="WTRAPRCPAVESLRSRYEEWPLATFVRRLGPEGRRLVOPGDP
/INERRGGPPMAFTSSVRSYLDNTVTETLRYGGAWALLLSRYGDDLLYVLLARGALY
LLWERRGGPPMAFTSSVRSYLDNTVTETLRYGGAWALLLSRYGDLLYVLLARGALY
LLWERRGGPPMAFTSSKGKVSDLSLGSGVCCHHRPSGTSLLSPROUNFOLPFTER
ARSPEVPTAENDLSSKGKVSDLSLGSGVCCHHRPSGTSLLSPROUNFOLPFTERH
FLYSRGGGERLNPSFLLSNLGPNLTGARRLVSITILSPROUNFRFTETRH
FLYSRGGGERLNPSFLLSNLGPNLTGARRLVSITILSPROUNFRHESBRYW
WARSSPGKDRVPAAENTERSHCRFRTANGOVTDALNTSPPHLMDLRLHSSRYW
WARSSPGKDRVPAAEHRLRERILATELFWLMDTYVVOLLRSFFYITGKNRLFFY
RKSWWSKLQSIGWRANDRTELSGEBVRHHQDTWLAMPICRLRFIPKPNULRFI
FVLRYWRALDGTPRNYERELSGEBVRHHQDTWLAMPICRLRFIPKPNULRR
FVLRYWRALDGTPRNYEVRANDFGANDALPGKKLUPVANNIRHSESTYCIRQYAVVRR
DSQCQVHKSFRRQVTTLSDLQPYMGQFLKHLQDSDAGALRNSVVIEGGISWNESSSL
FDFFLHFIRHSWYNTGDRCYTGGGSSLILLCCCCOMMENKLFFORDELL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Martin-Rivera, L., Herrera, E. and Blasco, M.A.
Direct Submission

Biblitted (19-JUN-1998) Immunology and Oncology, National Centre of Biotechnology, Cantoblanco, Madrid 28049, Spain

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LRFVDDFLLVTPHLDQAKTFLSTLVHGVPEYGCMINLQKTVVNFPVEPGTLGGAAPYQ
LPHCLFPWGCLLLDYQTLEYFCDYSGXAQYSIKTSLTFGSVFRAGKTWRNKLLSVLR
LKCHGLFLDLQVALQTVCTNIYKFLLQAYRFHAGVIQLPPQRVRKNLTFFLGIIS
SQASCCYALLKVKNPGMTLKASGSFPPEAAHNCYQAFLLKLAAHSVIYKCLLGPLRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              house mouse.

Mus musculus

Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;

Rodentia; Sciurognathi; Muridae; Murinae; Mus.

1 (Dases 1 to 3369)

Martin-Rivera,L., Herrera,E., Albar,J.P. and Blasco,M.A.

Expression of mouse telomerase catalytic subunit in embryos and adult tissues

Proc. Natl. Acad. Sci. U.S.A. 95 (18), 10471-10476 (1998)

98393668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1887 CATGGGTACCAGAGCTTTGGGCAGAAGGAAGCAGCCCAGCCTTCACCCAGCGTCTCAA 1946
                                                                                                                                       2819
                                                                                                                                                                                                                                                                                                                                                                                                              3369 bp mRNA ROD 09-SEP-1998 telomerase catalytic subunit mRNA, complete cds.
                                                                                                   2760 GAACTIGCGGAAGACAGTGGTGAACTICCCTGTAGAAGACGAGGCCCTGGGTGGCACGGC
2700 CCACGCGAAAACCTICCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGT
                                                               3840 GAACTIGCGGAAGACAGTGGTGAACTICCCTGTAGAAGACGAGGCCCTGGGTGGCACGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 3369;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AQKLLCRKLPEATMTILKAAADPALSTDFQTILD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 369; DB 28; I. Pred. No. 7.56e-290; 0; Mismatches 231;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             782 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Mus musculus"
/db_xref="taxon:10090"
1. 3369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
```

```
Best Local Similarity
                                                                     10461, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                     Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                   746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2216 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2156 (
 JOURNAL
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                             FEATURES
                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DePinho, R.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3426 bp mRNA ROD 02-APR-1998 telomerase reverse transcriptase mRNA, complete cds
                                                                                         2162
                                                                                                               2126
                                                                                                                                                                                                      2246
                                                                                                                                                                                                                                                   2306
                                                                                                                                                                                                                                                                                              2366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mus musculus
Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Rodentia; Sciurognathi; Muridae; Murinae; Mus.
1. (bases 1 to 3428)
Greenberg, R. A., Allsopp, R. C., Chin, L., Morin, G. B. and DePinho
Expression of mouse telomerase reverse transcriptase during
development, differentiation, and proliferation
                                                                                                                                                                                                                 CCAGGACCGCCGCCGCCTGAGCTGTATGTCAAGGTGGATGTGACGGCGCGCTACGACAC
                                                                                                                                                                                                                                                                                                                                                                                      TGTCGTAAAGATTGGTGACAGGTGCTATACGCAGTGCCAGGGCATCCCCCAGGGCTCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                             GGTGCAGCGGGATGGGTTGCTTTTACGTTTGATGACTTTCTGTTGGTGACGCCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCTCACCCACGCGAAAACCTTCCTCAGGACCCTGGGCGGGGTGTCCCTGAGTATGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CATGATAAACTTGCAGAAGACAGTGGTGAACTTCCCTGTGGAGCCTGGGTACCCTGGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGTGGGAGCCAGAACGTTCCGCAGAGAAAAGAGGGCCGAGCGTCTCACCTCGAGGGTGAA
                                   TCTGGACCAGACACCCAGGATGTACTTTGTTAAGGCAGATGTGACCGGGGCCTATGATGC
                                                                                                                                                           CATCCCCCAGGGTAAGCTGGTGGAGGTTGTTGCCAATATGATCAGGCACTCGGAGAGCAC
                                                                                                                                                                                CATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCC---AGAACAC
                                                                                                                                                                                                                                                                                              GCATCTGCAGGATTCAGATGCCAGTGCACTGAGGAACTCCGTTGTCATCGAGCAGCAT
                                                                                                                                                                                                                                                                                                                                           CTCTATGAATGAGAGCAGCAGCAGCTGTTTGACTTCTTCCTGCACTTCCTGCGTCACAG
                                                                                                                                                                                                                                                                                                                                                                                                    CCTATCCACCCTGCTCTGCAGTCTGTTTTCGGAGACATGGAGAACAAGCTGTTTGCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTTGGACCAAGCAAAAACCTTCCTCAGCACCTGGTCCATGGCGTTCCTGAGTATGGGTG
                      GACTCTTCAGCATGCTCAACTATGAGCGGACAAAACATCCTCACCTTATGGGGTCTTC
                                                                                                                                                                                                    GTACTGTATCCGCCAGTATGCAGTGGTCCGGAGAGATAGCCAAGGCCAAGTCCACAAGTC
                                                                                                                                                                                                                                                  CTTTAGGAGACAGGTCACCACCTCTCTGACCTCCAGCCATACATGGGCCAGTTCCTTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AF051911
Mus musculus t
AF051911
93005591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            house mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGCAGCT 2733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2814 CACGGCT 2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCUS
DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                            2307
                      1947
                                            2043
                                                                                                                                   2163
                                                                                                                                                                                2223
                                                                                                                                                                                                                          2280
                                                                                                                                                                                                                                                                        2340
                                                                                                                                                                                                                                                                                                                  2400
                                                                                                                                                                                                                                                                                                                                                                                      2427
                                                                                                                                                                                                                                                                                                                                                                                                            2514
                                                                                                                                                                                                                                                                                                                                                                                                                                                      2574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2727
                                                                   2007
                                                                                                                                                                                                     2187
                                                                                                                                                                                                                                                                                                                                                               2454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
TITLE
                                                                                        2103
                                                                                                              2067
                                                                                                                                                          2127
                                                                                                                                                                                                                                                  2247
                                                                                                                                                                                                                                                                                                                                                                                                                                  2487
                                                                                                                                                                                                                                                                                                                                           2367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
 ò
                     셤
                                            ò
                                                                g
                                                                                        ò
                                                                                                             셤
                                                                                                                                   ò
                                                                                                                                                       g
                                                                                                                                                                               ò
                                                                                                                                                                                                    g
                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                          윤
                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
```

```
Oncogene (1998) In press 2 (bases 1 to 3426) (bases 1 to 3426) (bases 2 to 3426) (bases 2 to 3426) (bases 2 to 341sopp.R.C., Chin,L., Morin,G.B. and DePinho,R.A. Direct Submission Submitted (02-MAR-1998) Microbiology and Immunology, Albert Pinstein College of Medicine, 1300 Morris Park Ave., Bronx, NY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1856 CAGACTGCGCTTCATCCCCAAGCCCAACGGCCTGCGGCCCATTGTGAACATGAGTTATAG 1915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1923 CAGACTCCGCTTCATCCCCAAGCCTGACGGGCGGCGGCCGATTGTGAACATGGACTACGT 1982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2280 GIACIGCGTCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGC 2339
                                                                                                                           Location/Qualifiers
1. .3426
/organism="Mus musculus"
/db_xref_taxon:10090"
/chromosome="13"
/map="MGD offset position 40; 40 cM from centromere"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGTACTGGGTATGAATGACATCTACAGGACCTGGCGGGCCTTTGTGCTGCGTGTGCGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1983 CGTGGGAGCCAGAACGTTCCGCAGAAAAGAGGCCCGAGCGTCTCACCTCGAGGGTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACTCTCTCAGCATGCTCAACTATGAGCGGACAAAACATCCTCACCTTATGGGGGTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2096 TCTGGACCAGACACCCAGGATGTACTTTGTTAAGGCAGATGTGACCGGGGCCTATGATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CATCCCCCAGGGTAAGCTGGTGGAGGTTGTTGCCAATATGATCAGGCACTCGGAGAGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1916 CATGGGTACCAGAGCTTTGGGCAGAAGGAAGCAGCCCCAGCATTTCACCCAGCGTCTCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTACTGTATCCGCCAGTATGCAGTGGTCCGGAGAGATAGCCAAGGCCAAGTCCACAAGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2223 CATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCC---AGAACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .,
6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 3426,
                                                                                                                                                                                                                                                                            /codon_start=1
/product="telomerase reverse transcriptase'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ch 41.0%; Score 369; DB 28; Length 34
1 Similarity 73.5%; Pred. No. 7.56e-290;
667; Conservative 0; Mismatches 231; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               907 9
                                                                                                                                                                                                                                                         /note-"mTERT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                979 c
```

```
repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                   KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                               g
                                                                      g
                                                                                              à
                                                                                                                   셤
                                                                                                                                       à
           ò
                                                    ò
                                                                                                                                                                                                              2695
                                                                                                                                                                                                                                                                                                CTTTAGGAGACAGGTCACCACCTCTGACCTCCAGCCATACATGGGCCAGTTCCTTAA 2335
                                                                                             2354 TCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTGCAGCAGA 2413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2414 CCAGCCGCTGAGGATGCCGTCGTCATCGAGCAGAGCTCCTCCCTGAATGAGGCCAGCA 2473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       23-DEC-1997
                                                    CCTATCCACCCTGCTCTGCAGTCTGTGTTTCGCAGACATGGAGAACAAGCTGTTTGCTGA
                                                                                                                                                                                                                                                       2340 CTTCAAGAGCCACGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGC
                                                                                  CTCTATGAATGAGAGCAGCAGCAGCTGTTTGACTTCTTCCTGCACTTCCTGCGTCACAG
                                                                                                                            2456 TGTCGTAAAGATTGGTGACAGGTGCTATACGCAGTGCCAGGGCATCCCCCAGGGCTCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GIGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGTGCGCATCAGGGGCCA
                                         GCATCTGCAGGATTCAGATGCCAGTGCACTGAGGAACTCCGTTGTCATCGAGCAGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 7218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     368 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 4.3%; Score 39; DB 21; Length 721
Best Local Similarity 1.1%; Pred. No. 1.71e-09;
Matches 4; Conservative 201; Mismatches 166; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unclassified.

1 (bases 1 to 7218)

Dorner, F., Scheiflinger, F. and Falkner, F. Gunter.

Recombinant fowloox virus

Patent: US 5670367-A 14 23-SEP-1997;

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                           PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1929 t
                                                                                                                                                                                                                                                                                                                                                                                                       166494 7218 bp DNA
Sequence 14 from patent US 5670367.
156494 92724471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="unknown"
1491 c 1486 g
                                                                                                                                                                                                                                                                                                                                           TGCAGCT 2762
                                                                                                                                                                                                                                                                                                                                                               2814 CACGGCT 2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1944 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unknown
                                                                                                                                                                                                                                                                                                                                                                                               ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                         LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
TITLE
JOURNAL
                                                                                                       2454
                                                                                                                                                                                                                                  2634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1129
                                                                                   2396
                                                                                                                                                                     2516
                                                                                                                                                                                         2574
                                                                                                                                                                                                              2576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2474
                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                    g
                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                            ö
                                                                                셤
                                                                                                        ö
                                                                                                                        g
                                                                                                                                                ò
                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                      à
                                                                                                                                                                                         à
```

```
Large Scale Sequence Analysis and Annotation with the Sequence Comparison Analysis (SCAN) System
Comparison Analysis (SCAN) System
Comparison Analysis (SCAN) System
Comparison
States 1 to 74371)
States 1 to 74371)
States 1 to 74371)
States 1 to 74371)
States 2 to 74371)
States 3 to 74371)
States 3 to 74371
Solarison
Submitted (Ol-AUG-1998) Human Genome Center, DOE Joint Genome Institute, Lawrence Berkeley National Laboratory, MS 74-157, Berkeley, CA 94720, U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                        DNA PRI 01-AUG-1998
5, BAC clone 119j3 (LBNL H175), complete
2534 AGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCCACTCCTCCTGCA 2593
                                                                                                                                                               Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutherla; Primates; Catarrhin; Hominidae; Homo.

1 (bases 1 to 7431);
Kimmerly,W., Bondoc,M., Cheng,J., Connolly,K.S., Gunning,K.M., Kadner,K., Miguel,T., Miller,C., Pitluck,S., Pollard,M., Sequencing of human chromosome 5
                                                                2594 GCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCGGCGGGACGGGCTGC
                                                                                                                                                                                               2654 TCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCACCCACGCGAAAACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /rpt_unit=GT
}oin(3246. .3410,3721. .3828)
/standard_name="RLF"
/note="65% & 69% protein identity GenPept:U22377"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Homo sapiens"
/db_xref="taxon:9606"
/map="5g"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DOE Joint Genome Institute.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /rpt_family="Alu"
2818. .2859
/note="(GT)21"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /rpt_family="Alu"
3707. .3700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /rpt_family="Alu"
2295. .2438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="LBNL H175"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /rpt_type=tandem
/rpt_unit=A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /chromosome="5"
                                                                                                                                                                                                                                                                                                                                                                                                        AC005369 74371 bp
Homo sapiens chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone="119j3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3707. .3728
/note="(A)22"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unpublished
2 (bases 1 to 74371)
                                                                                                                                                                                                                                                             1429 YYYYYGTACC 1439
                                                                                                                                                                                                                                                                                                          2714 TCCTCAGGACC 2724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                        sequence.
AC005369
93367505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ricke, D.O
```

```
1175. .14470
rpt_family="Alu"
>mplement(14906. .15259)
standard_name="possible repeat"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      22321. .22457
/rpt_family="Alu"
complement(22638. .22981)
/standard_name="possible repeat"
23022. .23326
                                                                                                                                                  rpt_family="Alu"
complement(7830. .8185)
standard_name="possible repeat"
1258. .8503
                                                                                                                                                                                                                     /rpt_family="Alu"
complement(9740. .9845)
/rpt_family="MER42"
complement(10440. .11015)
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(16675. .16977)
/rpt_family="Alu"
complement(16993. .17085)
/rpt_family="MER42"
complement(17678. .18276)
/rpt_family="Alu"
19305. .19583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /rpt_type=tandem
/rpt_unit=GTT
complement(19943. .20222)
/rpt_family="Alu"
21202. .21496
/rpt_family="Alu"
21736. .22038
22017. .22038
/note="(A)22"
                           5327. .5602
/rpt_family="Alu"
6586. .6956
/rpt_family="L1"
6647. .6684
/note="(CA)19"
                                                                                                                                                                                                                                                                                                                                                                                         12365. 12645
/rpt_family="Alu"
13727. 13750
/note="(AC)12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15300. .15613

7pt_family="Alu"

16671. .16690

7note="(T)20"

7pt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /rpt_family="Alu"
19914. .19945
/note="(GTTT)8"
                                                                                                           'rpt_type=tandem
'rpt_unit=CA'
113. 7373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .r*v24
/rpt_family="L1"
4175. .14470
                                                                                                                                                                                                         rpt_family="Alu"
070. .9387
                                                                                                                                                                                                                                                                                                                    rpt_family="Alu"
2057. .12085
                                                                                                                                                                                                                                                                                                                                                                rpt_type=tandem
rpt_unit=A
2365, .12645
                                                                                                                                                                                                                                                                                                                                                                                                                                                    pt_type=tandem
pt_unit=AC
                                                                                                                                                                                                                                                                                                                                   12057. .12085
'note="(A)29"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     pt_unit=T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ot_unit=A
repeat_region
                             repeat_region
                                                        repeat_region
                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                    repeat_region
                                                                                                                                        repeat_region
                                                                                                                                                                  repeat_region
                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
```

```
36901...37164
%tandard_name="STSG-9983"
/db_xref="dbSTS:GS54"
complement(37595...37654)
/note="GRAIL 2 excellent exon, frame 0"
/note="GRAIL 38063...3818,38741...38995,39071...39205,39332...39630,39935...41972,42103...42225,42492...42569,
                                                                                                                                                                                                                                                                                                                                                                                  /rpt_unity="%A
28712...28930
/rpt_family="%ER20"
complement(128769...28838)
/note="GRMiL_2 excellent exon, frame 0"
28987...29214
/rpt_family="Alu"
join(29485...29559,29598...28779)
/note="95% identity dbsTs:G14522 (SHGC-11312)"
29495...29976
/standard_name="Al027942"
/note="100% identity EST ov84a10.x1"
complement(30682...30536)
/note="GRAIL_2 excellent exon, frame 2"
/rpt_family="MATR" 23734)
/note="GRAIL_2 excellent exon, frame 1"
complement(31673...31724)
/note="GRAIL_2 excellent exon, frame 2"
/note="GRAIL_2 excellent exon, frame 2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /standard_name,"histidyl-tRNA synthetase"
/note="78%-100% protein identity GenPept:U18937"
complement(38069..38215)
/note="GRAIL 2 excellent exon, frame 0"
complement(38462..38578)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement(34021. .34144)
/note="GRAIL 2 excellent exon, frame 2"
complement(35238. .35331)
/note="GRAIL 2 excellent exon, frame 1"
//note= 36663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /rpt_family="Alu"
36901. .37222
/note="100% identity EST ou55c09.x1"
/db_xref="dbsT:AI025011"
86901. .37164
                                                                                                                                                              complement(25349. .25713)
/rpt_family="Alu"
complement(25727. .26471)
/rpt_family="Alu"
27191. .27477
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /rpt_family="Alu"
32977. .33088
/rpt_family="MLT1"
complement(33670. .33785)
/rpt_family="Alu"
complement(34021. .34144)
                                                                                                            /rpt_unit=A
complement(24639. :24694)
/rpt_family="MER42"
                                                                                                                                                                                                                                                                                             /rpt_family="Alu"
28040. .28066
/note="(A)27"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   rpt_family="MLT1"
2617. .32908
                                  rpt_family="Alu"
/rpt_family="Alu"
23473. .23761
                                                      13744. .23767
'note="(A)24"
'rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                     rpt_type=tandem
                                                                                                                                                                                                                                                                            .28057
                                                                                                                                                                                                                                                                                                                                                                        rpt_unit=A
8712. .289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14379.
                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                         repeat_region
                                                                                                                               repeat_region
                                                                                                                                                                  repeat_region
                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
```

Note: remainder of annotations omitted

```
Direct Submission
Submitted (01-AUG-1998) Human Genome Center, DOE Joint Genome Institute, Lawrence Berkeley National Laboratory, MS 74-157, Berkeley, CA 94720, U.S.A.
Sequence submitted by:
DOE Joint Genome Institute.
Location/Qualifiers
1. 74371
/organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                               /rpt_type=tandem
/rpt_unit=GT
join(3246 . 3410,3721: .3828)
/standard_name="RLF"
/note="65% & 69% protein identity GenPept:U22377"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                standard_name="possible repeat"
258. .8503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /standard_name="possible_repeat"
15300. .15613
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .11015)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement(9740. .9845)
/rpt_family="MER42"
complement(10440. .11015)
/rpt_family="Alu"
11950. .12250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  . .8185)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5327. .5602
/rpt_family-"Alu"
6586. .6956
/rpt_family-"L1"
6647. .6684
/note-"(CA)19"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13783. 144024
/rpt_family="L1"
14175. 144470
/rpt_family="Alu"
complement(14906.
                                                                                                                                                                                                                                                                              /rpt_family="Alu"
2818. .2859
/note="(GT)21"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /rpt_family="Alu"
9070. .9387
/rpt_family="Alu"
                                                                                                                                                                                                 /chromosome="5"
/note="LBNL H175"
                                                                                                                                                                                                                                 893. .1030
/rpt_family="Alu"
2295. .2438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   366. .4661
rpt_family="Alu"
327. .5602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   113. .7373
rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /rpt_family="Alu"
12057. . 12005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /rpt_family="Alu"
13727. .13750
/note="(AC)12"
                                                                                                                                                                                                                                                                                                                                                                                                                                 rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  rpt_type=tandem
rpt_unit=A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  omplement (7830
                                                                                                                                                                                 /clone="119j3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                   3707. .3728
/note="(A)22"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .12645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2057. .12085
note="(A)29"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /rpt_unit=CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'rpt_unit=AC
3783. .14024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /rpt_unit=A
                                                                                                                                                                    /map="5q"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2365.
                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                     source
     TITLE
JOURNAL
                                                                                                   FEATURES
                                                                  COMMENT
                                                   ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AC005369 74371 bp DNA PRI 01-AUG-1998
Homo sapiens chromosome 5, BAC clone 119j3 (LBNL H175), complete
                                                                                Db 15918 KCKCTSTSKCSCMSRSKSKRGWGYRSWKKYRCAMWITCKSSKCWCWSYRMRWKCYSCSYC 15977
                                                                                                      1 (Dases I to 215)
1 (Dases I to 215)
2 (Dases I to 2015)
Bennett,A., Labavitch,J.M., Powell,A. and Stotz,H.
Plant inhibitors of fungal polygalacturonases and their use to
control fungal disease
Patent: US 5569830-A 5 29-OCT-1996;
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 74471)
Kimmerly,W., Bondoc,M., Cheng,J., Connolly,K.S., Gunning,K.M.,
Kadner,K., Miguel,T., Miller,C., Pitluck,S., Pollard,M.,
Rojeski,H., Subramanian,S. and Martin,C.H.
Sequencing of human chromosome 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Large Scale Sequence Analysis and Annotation with the Sequence Comparison Analysis (SCAN) System Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3 (bases 1 to 74371)
Kimmerly, W. Bondoc, M., Cheng, J., Connolly, K.S., Gunning, K.M.,
Davis, C.A., Kadner, K., Miguel, T., Pitluck, S., Pollard, M.,
Rojeski, H., Subramanian, S. and Martin, C.H.
                                                                                                                                                                                                                                                  30-0CT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MINVIMSSSSVVSRTASCNDKAKKDGNTISSWTIDCCNRIWGVCDIDITYRVNNDSGHNK 60
                                                    Gaps
                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                  Length 74371;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2167 GACCCGCCGCCGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCG 2214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   141 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 215;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61 YSSANYNYGGNNVGAAKTHYYTHTNVSGADSKTVTDSYNASGTSSSNG 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 46; Mismatches 46; Indels
               Score 34; DB 26; Length 743
Pred. No. 3.54e-06;
46; Mismatches 25; Indels
                                                                                                                                                                                                                                                    PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 30; DB 21;
Pred. No. 1.16e-03;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26 t
                                                                                                                                                                                                                          Sequence 5 from patent US 5569830.
128278
91819054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="unknown"
8 c 25 g
                                                                                                                                               Db 15978 YCSSGKKYWCRCSMYWYTCYYSYK 16001
                                                                                                                                                                    2549 CACTGGACGTAGGACTTGCCCCTG 2526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases 1 to 74371)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 3.3%;
Best Local Similarity 14.8%;
Matches 16; Conservative
                 Query Match 3.8%;
Best Local Similarity 15.5%;
Matches 13; Conservative
                                                                                                                                                                                                                                                                                                                                                Unknown.
Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AC005369
93367505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AC005369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                edneuce
                                                                                                                                                                                                                                                                                                                                 Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HTG.
human.
                                                                                                                                                                                                                                 œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                              KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                               RESULT
                                                                                                                C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ô
```

```
MEU72662 15807 bp DNA BCT 06-JUN-1997

Methylobacterium extorquens methylotrophy region containing malyl-CoA lyase (mclA), putative ABC transporter subunit A (abcA), putative ABC transporter subunit (abcC), methanol dyhydrogenase large subunit (formosopterin aldolase (folB) and dihyrdoxyptercate synthase (folC) genes, complete cds, and phosphoenolpyruvate carboxylate (ppcA) gene, partial cds, and pyrroloquinoline quinone biosynthesis gene cluster containing PqqE (pqqE) gene, complete cds, and PqqC/D gene, urgential cds.
                                                                            n 3297. 3308

/rpt_family="MLT1"

complement(33670. 33785)

/rpt_family="Alu"

complement(3528. 35331)

/note="GRAIL 2 excellent exon, frame 2"

/note="GRAIL 2 excellent exon, frame 1"

/note="GRAIL 2 excellent exon, frame 1"

% forte="100% identity EST cu55c09.x1"

/note="100% identity EST cu55c09.x1"

/db_xref="dbEST:Al025011"

% farndard_name="STSG-9983"

/db_xref="dbEST:Al025011"

% farndard_name="STSG-9983"

/note="GRAIL 2 excellent exon, frame 0"

/note="GRAIL 2 excellent exon, frame 0"

% farndard_name="histidy1-tRNA synthetase"

/note="70%-100% protein identity GenPept:U18937"

/note="70%-100% protein identity GenPept:U18937"

/note="70%-100% protein identity GenPept:U18937"

/note="GRAIL 2 excellent exon, frame 0"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 (bases 1 to 13697)
Chistoserdova, L. and Lidstrom, M.E.
Wholecular and mutational analysis of a DNA region separating two methylotrophy gene clusters in Methylobacterium extorquens AMI Microbiology 143 (Pt 5), 1729-1736 (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15906 WGASRSRGWSTCKCKCTSTSKCSCMSRSKSKRGWGYRSWKKYRCAMWMTCKSSKCWCWSY 15965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Db 15966 RMRMKCYSCSYCYCSSGKKYWCRCSMYWYTCYYSYKXYWSMSYCTCTSWGWRMMWSKGRS 16025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eubacteria; Proteobacteria; alpha subdivision; Methylobacterium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2102 CTGTGCTGGGCCTGGACATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGGGG 2161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 30; DB 26; Length 74371;
Pred. No. 1.16e-03;
63; Mismatches 53; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Methylobacterium extorquens. Methylobacterium extorquens
                                 /rpt_family="Alu" 32977. .33088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Note: remainder of annotations omitted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 3.3%;
Best Local Similarity 14.7%;
Matches 20; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Db 16026 WMYASRSGCSCSCSMC 16041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2162 CCCAGGACCCGCCGCC 2177
      repeat_region
                                                                     repeat_region
                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NID
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    28987. .29214
/rpt_family="Alu"
join(29485. .29559, 29598. .29779)
29495. .29976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29495. 29976
// Standard_name="AID27942"
// Standard_name="AID27942"
// note="100% identity EST ov84a10.x1"
// rpt_family="MIR"
// complement(30682. 30733)
// note="100% identity EST ov84a10.x1"
// note="100% iden
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /rpt_type=tandem
/rpt_unit=A
28712. .28930
28712. pt_family="MER20"
complement(28765. .28838)
/note="GRAIL 2 excellent exon, frame 0"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   standard_name="possible repeat"
                                                                                                             /rpt_danily="Alu"
/rpt_family="Alu"
/rpt_family="Alu"
/rpt_family="MER42"
/rpt_family="MER42"
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /rpt_family="Alu"
23473 .23761
/rpt_family="Alu"
23744 .23767
/note="(A)24"
/rpt_trpe=tandem
/rpt_unit=A
complement(24639 .24694)
/rpt_family="MER42"
/rpt_family="MER42"
/rpt_family="MER42"
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /rpt_family="MLT1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   22321. .22457
/rpt_family="Alu"
complement(22638.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'rpt_type=tandem'rpt_unit=A
                                                           /rpt_type=tandem
/rpt_unit=T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'note="(A)22"
repeat_region
                                                                                                                              repeat_region
                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
```

ö

```
/codon_start=1
/transl_table=11
/transl_table=11
/product-"putative ABC transporter ATP-binding subunit"
/db_xref="put_gl1657790"
/translation="MSAAGAEPGAETAPLITVRVDRKVYRKRGRKAGTEAVEAVRGLA
/FELHAGEITCLIGPSGAGKTTILRILGLDRDFESGSTPEPSESAGIAMVFODPRLLPW
RTIEOWVRLGIPRERRARDLDGLFASIGLASWRAHYPGALSLGMQRRVALARALALEP
RINTLDEPFYSLDDAAAASILAALVVZAVAGSGTSALWYTHNVAEAIEIADRLLVSPR
PARLITDLPLDRPRRERDRAWADATRQGLTARFPGIVAQ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          YSTEONGEDVNSKGICPAALGIKDOOPAAFSEKIGLEYVPINHYCMDYEFRYVYTYPO
OPYVGALLSMYPAPGSHGGMGNFIAWDNLOGKIKWSNDEOFSAWGGALAISGDVLFYG
OPYVGALLSMYPAPGSHGGMGNFIAWDNLOGKIKWSNDEOFSAWGGALAISGDVLFYG
LIEPERAGLGAVGGYAALSSYINLGGQLIVFSLPNN"
11DPNAGLGAVGGYAALSSYINLGGQLIVFSLPNN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product="mxaJ homolog"
/db_xref="PID:g1657793"
/translation="MTRSSAPVSVAVAALLLSAGARPAHAQHLPDLVTQDVLRVCSDP
                                                                                                                                                                                                                                                                                                                                                                                        SGSLFFNVGVTLARVAVSFVIAMSLGVLLGIALGRSRLADRLLDTPLLVVLNTPALVI
TVLAYVWLGLTETAAIVAVALNKLPNVAVIMREGARGLDPGLEEMATTYRFDRRTWIA
HVLLPQLQPFMVAAARSGISLAWKIVLVVELLGRTQTGSAFAINYYFTLFDVTAVIGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="methanol dehydrogenase large subunit homolog"
/db_xref="PID:92160682"
/translation="MRAVHLLALGAGLAAASPALANESVLKGVANPAEQVLQTVDYAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QGAKIVWKYEPKQDPSVIPVMCCDTVNRGLAYADGAILLHQADTTLYSLDAKSGKVNW
SVKNGDPSKGETNTATVLPVKDKVIVGISGGEFGVQCHVTAYDLKSGKKVWRGYSIGP
DDQLIVDPEKTTSLGKPIAKDSSLKTWEGDQWKTGGGCTWGWFSYDPKLDLMYYGSGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PSTWNPKQRPGDNKWSMTJWARNPDTGMAKWVYQMTPHDEWDFDGINEMILTDQKFDG
KDRPLLTHFDRNGFGYTLDRATGEVLVAEKFDPVVNWATKVDLDKGSKTYGRPLVVSK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /translation="MKRTALLGLVGAALLGAVPAATVAFAQDAKPELANKLDPNAKEI
DEPVLKAATAAKEEDGKYFPKOHPFHITNDGKKVDWFTYSGYRKYHAECHVCHGPD
GMGSTYAPALKDSIKRLSYBEFYGILAGGKOBISNTANQVWFAFGDNKNVMCYANDLY
VYLRRAAAGAWGRAFOEKEDKPESAKTVEKECLGG"
                                                        NVAQIAYGAPPLLAQKLETGELDAALLYWOFCARLEAKGFKRLISADDVMRAFGAKGA
                                                                                     VSLIGYLYEGHTVADRGEVVRGFARASGAAKDALANEPALWETVRPLMAAEDDATFAT
                                                                                                                                                                                                                                                                                                                                                           /translation="MALLARLLSLAVLLVLWQGLSAYADTRTLPAPSAVFAFMLREAQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TRYSKLDQINASNVKNLQVAWTFSTGVLRGHEGSPLVVGNIMYVHTPFPNIVYALDLD
  EAAVIKARGFDTANGFTLDIVKLAGNDAARIAFLGGQVDAIVGDLIFAARLGNEGRGV
                                                                                                               LKRDFLAGIPRRPIAAERADGERIYAALDRLAGAQLLGVGKSLPPDLYLDASGNG"
                                                                                                                                                                                                                                                                                                        /product="putative ABC transporter subunit B" /db_xref="PID:g1657789"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /function="methanol oxidation"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SLVFMSVMLALDSLLLQPLDAHVRRWR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="cytochrome c"
/db_xref="PID:91657792"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="alpha subunit"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9475. .10065
/gene="maxG'"
/codon_start=1
/trans1_table=11
                                                                                                                                                                                                                                               /codon_start=1/trans1_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7515. .9320
/gene="mxaF'"
7515. .9320
/gene="mxaF'"
                                                                                                                                     5319. .6056
/gene="abcB"
5319. .6056
/gene="abcB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6037. .6810
/gene="abcc"
6037. .6810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10065. .10919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="maxG' 19475. .10065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6037. .6810
/gene="abcc"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="mxaJ'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="mxaJ
                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /translation="EPDDALEALSGASRAAYVNLLQAEGLVDYFOAASPLDEISLLNI
GSRPARRFGAKSLSDLRAIPWYFAWSONRHVITGWYGVGSGLKSFIDVRGEAGEVLRR
LENGKYRFALULDEVEKTLLMYDLEIARDYAGLVEDAGIRARFFGMIEAEYTLTREMY
LRVSGDSELAQRFEDFSERLKGRLPTINQVSREQVELLRRYRSETDEDKREAVKSALL
LSINCIAVGFGATG"
/gene="mcla"
/gene="mcla"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1887. .2156
/codon_start=1
/transl_table=11
/product="orf1"
/db_xref="PID:g1657786"
/translation="MAGFARPFSFGMLGRQARSFRSISSRTASGATSWLSSPTSGSAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product-"malyl-coa lyase"
//d_xref="pid:gi657785"
//translation-"mafyl-gi67785"
//translation-"m&fylioqatprihrselavpgsnptfweksaaskadviflidle
DavapddkeQarknInOalndlDwGNkThwNINGLDTHYWYRDVVDIVEACPRLDMI
LIPKVGVPADVYAIDVYITYQIEQAKKREKKIGFEVLETEALGRANUVEATATSSKRLEA
MSFGYADYAASTRARSTVIGGVNADYSYLIDKDEAGNRQTHWODPWLFAQNRWLVACR
AYGLRPIDGPFGDFSDPDGYTSAARRCAALGFEGKWAIHPSQIDLANEVFTFSEAEVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db_xxeef="pid:gl657787"
/translation="WTAFDADLRSLAAQTTLSRRTVIATSLATGFALAVQPVAAQTTI
/translation="WTAFDADLRSLAAQTTLSRRTVIATSLATGFALAVQPVAAQTTI
ATDANGLIBEGEVKIPMODGVYPAXRANPAEGGPFTILVVOGETEGVHEBIKDVCRRLA
KLGTRALAPELFARGOSVSTLADIQQIVSEVVSKVPDDQVMSDLDAAVAFAKGTGKAD
TARLGITGFCWGGRIFWLYAAHNPAVKAGVAMYGRLVGDSSALMPKNPVDVAADLKAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product-"putative ABC transporter subunit A"
/db_xref-"PID:91657788"
/translation-"MLSRRGMLATAALSLAATLPMARRAQAAGETFRLGVLPFGTASW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VLGLYGGADQGIPVATIDRMKEACRAAGKTCDFVVYPEAGHAFHADYRPSYRAEPAQD
GWKRLQDWFRQYGVA"
                                                Toyama, H., Chistoserdova, L.V. and Lidstrom, M.E. Sequence analysis of psq genes of Methylobacterium extorquens AM1 required for biosynthesis of pyrroloquinoline quinones and purification of a biosynthetic intermediate
                                                                                                                                                                                                                                                                              ĕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KARRILEAMEEAAKAGRGAVSLDGRLIDIASIRMAEALIQKADAMGGK"
1887. .2156
                                                                                                                                                                                                                                         Direct Submission
Submitted (26-SEP-1996) Chemical Engineering, University Washington, Box 351750, Seattle, WA 98195, USA
On Jun 6, 1997 this sequence version replaced gi:1408258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /transl_table=11
/product="phosphoenolpyruvate carboxylase"
                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Methylobacterium extorquens"
                                                                                                                                                                             % (bases 1 to 15807)
Chistoserdova, L.V. and Lidstrom, M.E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /db_xref-"PID:g1657784
                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
1. .15807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 db_xref="taxon:408"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    887. 1861
/gene="mclA"
/codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4284. .5279
/gene="abcA"
/codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transl_table=11
                         (bases 12307 to 15807)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product="orf2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2797. .3672
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ___ppcA"
. 699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /strain="AM1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="abcA"
4284. .5279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="ppcA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           669.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /dene="
                                                                                                                                                                                                                                                                                                                                                                                                                    source
                   REFERENCE
AUTHORS
TITLE
                                                                                                                                                         JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                            TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                               COMMENT
```

```
2506 ACATGAAGCGTAGGAAGACGTCGAAGAGGCCACTGCTGGCCTCATTCAGGGAGGAGCTCT 2447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'product-"Algx"
                                                                                                                                                                                                                                                                                                                     Azotobacter vinelandii.
                                                                                                                                                                                                                                                                                                                                     Azotobacter vinelandii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="algx"
120. .1571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120. .1571
/gene="algx"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "algg"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <1. .99
/gene="algG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="AlgG"
                                                                                                                                                                                                                                                                                                                                                                     Azotobacter.
1 (bases 1 to 5591)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 (bases 1 to 5591)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <1. .99
/gene="a
                                                                                                                                                                                                                                                    complete cds. AF027499
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Vazquez, R.A.
                                                                                                                                                                                                                                                                                    92920564
                                                                                                                                                                                                                                                                                                                                                                                                                         Espin, G.
                                                                                                                                                                                      12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                  KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                    Сp
                                                                                                  g
                                    a
                                                                                                                                                                                             /product="6-hydroxymethyl-7,8-dihydropterin
pyrophosphokinase"
pyrophosphokinase"
/d_xref="piD:g2160683"
/translation="WRRAYLGLGSNIGDRAAMLAGAVEHLAATPGIRVVARSADYRTP
PWGPTDQDWFLNAAVAIDTELTPHGLLEVCLSIEAALGRVREPRWGPRVIDIDVLAYE
complement(11437. .11831)
/gene="folb"
                                                                                                                                                                                                                                                                                                                                                                                                                /product-"dihydroneopterin aldolase"
/db_xref="PID:92160664"
/db_xref="PID:92160664"
/translation="MADRILVHRLAVPARHGVLPEEERLGQRFYISLECRLDLAPAGR
SDDWAALVSYADLAEIALISANRFALIEALAEATAETCLARFPRIETIAVRIDKPS
APIPAYLDYAAIEIYRGRSDSWATTETR"
complement(11823. .12618)
GNMPFSERKGGGFENKIAQIVADELKVKLRYYWLTQGPGFVRNTLGTGLCDLIIGTSG
GDIVQATUPYYRSAYYLVARKGELADEKRLDDPRIDROIIIAGTPSRRLSEKLLV
GERTHAYAPYAPYAFGGERAYJADLAEKKIDVALIMGPARMIAKQSVPMDVV
PLLHEPGRAALTFRVSMGVRHNENDWKRSLNTVLRKRKADIEAVLREYEVPLLAEEDT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3117 CGCCCTGGCGCCCGAACTCTATGCCCGGCAGGCGACGTCTCGACCTTGACCGACATCCA 3176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2316 CGCCCATGGGCACGTCCGCAAGGCCTTCAAGAGCCACGTCTCTACCTTGACAGGCCTCCCA 2375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 (bases 1 to 215)
Bennett,A., Labavitch,J.M., Powell,A. and Stotz,H.
Plant inhibitors of fungal polygalacturonases and their use to control fungal disease
Patent: US 5569830-A $ 29-0CT-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       30-0CT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DCCNRTWGVCDTDTTYRVNNDSGHNKYSSANYNYGGNNVGAAKTHYYTHTNVSGADSKTV 94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 15807;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 215;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         141 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 28; DB 21; Length 215
Pred. No. 1.85e-02;
62; Mismatches 84; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 29; DB 15; Length 158
Pred. No. 4.69e-03;
0; Mismatches 26; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PAT
                                                                                                                                              /function-"folate biosynthesis"
                                                                                                                                                                                                                                                                                                                                                                function="folate biosynthesis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26 t
                                                                                                  /gene="folA"
complement(10966. .11442)
                                                                                                                                                                                                                                                                                                                              complement(11439. .11831)
/gene="folb"
                                                                                  complement(10966. .11442)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          128278 215 bp DNA
Sequence 5 from patent US 5569830.
128278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualiflers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="unknown"
8 c 25 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     annotations omitted.
                                                                                                                                                                                  /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                   /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3177 GCAGATCGTGAGCGAGGTCGT 3197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2376 GCCGTACATGCGACAGTTCGT 2396
                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3.2%;
larity 67.9%;
Conservative
                                                                                                                                      /gene="folA'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       larity 14.1%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity
Matches 55; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unclassified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
Matches 24; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    91819054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Note: remainder
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         35
                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
```

:: -::

::

:: :: ::

·· ·· ··

```
LCPAAADPNSYTSNYMKGFVTLVQGNESDWLFRTNEDLRTEFGTTPEGYRQLKALHDA
FRSKGVELLVTYQPPRGWQRNKLLPADYARPDYDKAYNNFRATLKHFEQLGYWYDDL
TPLIDEKVEPAFYFFGDHHWTSYGARSARVYAETVKEIPAFADIPRKEFYTKKWGRM
GKRGTHHRVAGQLCNTTYAPFBHSDQFFTEPRGEGGGDLFGDSSLPQITLVGTSHSGTN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         YNFAGFLSEYMGAETLNVAFPGSGLEGSMLKYLASDEFQKNPPKILIWEFSPLYDLAE
DRYSTRAGLEMGAGEGEKTLLAGKTATLRGERGKEVLINGAGRLVEATNSRHQYDIR
FSDPSVKLEGTIWHGRRERFGPKPVTPETNGRFAFNMRDEADWGGLNFFAMETO
PPEGLKEPVEVEVRLCKRHDYHAPANLTARSGN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref-"PID:92920566"
/translation-"MKTHNSKWIGPAALAAAIALAAAGVRAEETPTGLPVYRAESCCD
                                                                                                                                                                                                                                                                                                                         AF027499 5591 bp DNA BCT 01-MAR-1998
Azotobacter vinelandii mannuronan C-5-epimerase (algG) gene,
partial cds; and AlgX, alginate lyase (algL), AlgI, and AlgV genes,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cuernavaca,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eubacteria; Proteobacteria; gamma subdivision; Azotobacteraceae;
                                           95 IDSYNASGISSSNGGIDGNRSGADSYGSSKIAMISRNRIGKTANNAVDSRNMGDASVGSD 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="algL"
1580. .2704
/gene="algL"
/note="AlgL; similar to Pseudomonas aeruginosa AlgL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Vazquez, R.A., Alvarado, D.A., Guzman, J., Soberon-Chavez, G. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Direct Submission
Submitted (30-SEP-1997) Microbiologia Molecular, Inst. de
Biotecnologia. UNAM, Av. Universidad s/n Col. Chamilpa, Cu
Morelos 62210, Mexico
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
/transl_table=11
/product="mannusonan C-5-epimerase"
/translation="LEDKQEEILDLLVRRQKAVLIDPVVDPAQAEL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="similar to Pseudomonas aeruginosa AlgX"
                                                                                                                                                                     155 KNTKKHAKNSADGKVGSKNNGDRNNRYGTGTKSNVSNNCGGGNKRDVSSY 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Azotobacter vinelandii"
/strain="ATCC9046"
/db_xref="taxon:354"
/db_xref="ATCC:9046"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The Azotobacter vinelandii algXLIVFA operon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
```

US-08-951-733-13-03.rge

```
Unpublished
2 (bases 1 to 1908)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1. .1912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1886.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ิต
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Rattus sp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             91336815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              408
                                                               Qian, Z.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     581478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            polyA_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14
                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                           AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation-"MNRTTNLVYAGTFAGTLIALSLWSLKGAAGFSTADNTPVLNGKL
ALAFEKHYDDEEPIKKLGTNUMAALDYTLFGEGEPGVVTGANOWLESDEEFEKPAAS
ONITDNOALIOGVRETLARNNYOLVAAILPARARLYPENFGEOOPASLHEDILYONFR
IVADAGIOAPDLLGFLQOAKAGGOVFLRTDTHWTPYGAQVVAGOLATITPIGULPES
BOVYVETLACGHKGDLTNFLPLDPLDEELLPPPDQLAKHYRQQEESBARDDLFS
ENGVYVETLACGHKGDLTNFLPLDPLDEELLPPPDQLAKHYRQQEESBARDLFS
ENGVYVALVGTSYSADERWINGAGLRQALGGDLVARBEBGRGPLLPHKRQDESBFKK
SPPRLVIWEFPERYLPMAYDLSEFDADMIAQLKAAGRODKQLADNTATNQGANH"
                                                                                                                                                                                          YMEKGRAGDLECTLAWLDAWAEDGALLTTEYNHTGKSMRKWALGSLAGAYLRLKFSSS
QPLAAYPEQARRIESNFAKVGDQVIKDWSDLPIKRINHSYWAAWAYWAAGYYTURRP
LEDWAVEQFITAAGQVDSNGFLPHELKRRQRALAYHWSLPPLMMYAAFALANGVDLR
GDNDGALGRLAGVULAGVERVEDFFARRAGDEDODMEDLETDAKFSWLEPYCALYSGSP
ALRERKAEMGPFKNFRLGGDVTRIFDPAEKSPRSTVGKRD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product-"Alg1"

/db_xref="PID:92920568"

/db_xref="PID:929205688"

/db_xref="PID:92920
                                                               FPHLIAGPVLRFRDLVDGFNHRTHTLDKFAEGCTRFWQGFIKKVFIADSLAPIADHCF
FLXSPFTGADAMLGALAYTAQLYFDFSGYSDMAGLGLAUGFRFRHENFNDPYISOSITE
FWRRHISLGSFWLDYLYISLGGRNGTTFDTYRNLLIFMLLGGLWHGANWTFIIWGAW
HGTWLAIERALRIDAAPKTIRPLRWVFAFLLVMVGWVIFRAENLDVAMRMYAAMFSFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DWTLSDLNKAOLTSLOIATLLLAYVVIAVYGIROFYAOPLTGAPKAKANDQADAPQGI
VHASSGTLAYSQAIDIPALATRVAVLLLFAASVLKLSAQSFSPFLYFQF"
4409. .5575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rattus rattus
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Eutheria; Rodentia; Sciurognathi; Myomorpha; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Murinae; Rattus.

1 (bases 1 to 1905)
Qian,Z., Gilbert,M.E. and Kandel,E.R.
Differential induction by neuronal activity in rat brain of a protein tyrosine phosphatase containing a nuclear-localization signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rattus rattus protein tyrosine phosphatase gene, complete cds U02553 9409022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19-0CT-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="similar to Pseudomonas aeruginosa AlgJ"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="similar to Pseudomonas aeruginosa AlgI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 5591;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 26; DB 15; Length 559
Pred. No. 2.66e-01;
0; Mismatches 7; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ROD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2572 ATCCTCTCCACGCTGCTCTGCACCTGTGCTACGCGCACA 2611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3830 ATCCTCACCATGCTGCTCGGGGGCCTGTGGCACGGCGCCA 3869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            889 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="AlgV"
/db_xref="PID:92920569"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1640 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="algv"
4409.
                                                                                                                                                                                                                                                                                                                                                   2897. .4396
/gene="algI"
2897. .4396
/gene="algI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4409. .5575
/gene="algV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1908 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Match 2.9%;
Local Similarity 82.5%;
les 33; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2011 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        black rat.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RRU02553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    윤
```

.

```
/note="oxidative stress-inducible protein tyrosine phosphatase; This sequence comes from Fig. 1" /codon_start=1 /product="3CH134/CL100 PTPase" /db_xref="PID: 61336816" /translation="WYMEVGILDAGGLRALLERRAAQCLLLDCRSFFAFNAGHIVGSV
                                                                                                                                                                                                                                                                                                                                                                                            /product="protein tyrosine phosphatase"
/db_xref="TD:9409023"
/tb_sref="TD:9409023"
/translation="MYMEYGILDAGGIRALIRERAAQCLLLDCRSFFAFNAGHIVGSV
/translation="MYMEYGILDAGGIRALIRERAAQCLLLDCRSFFAFNAGHIVGSV
NYRFGTIVRRAAKAGLEH!PFFFERGRILAGAYTPVVLLDERSAALDGRKRDGTL
ALAAGALCREARSTQYFFLQGGYEAFSASCPELCSKQSTPMGLSLPLSTSVPDSAESG
CSSCSTPLXDQGGPVEILSFLYLGSAYHASRKDMLDALGITALINVSANCPNHFEGHY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QYKSIPVEDNHKADISSWFNEAIDFIDSIKDAGGRVFVHCQAGISRSATICLAYLMRT
NRVKLDEAFEFVKQRRSIISPNFSFMGQLLQFESQVLAPHCSAEAGSPAMAVLDRGTS
TTTVFNFPVSIPVHPTNSALNYLQSPITTSPSC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S81478 1912 bp mRNA 29-MAY-1996 3CH134/CL100 PTPase=oxidative stress-inducible protein tyrosine phosphatase [rats, peritoneal macrophage cDNA library, mRNA, 1912
Direct Submission
Submitted (15-OCT-1993) Zhuo Qian, Center For Neurobiology and
Behaviour, Howard Hughes Medical Institute, Columbia University,
722 West 168th Street, New York, NY 10032 USA
Location/Qualifiers
1. 1908
//organism="Rattus rattus"
//db_xref="taxon:10117"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GenBank staff at the National Library of Medicine created this entry [NCBI gibbsq 176693] from the original journal article. This sequence comes from Fig. 1.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2100 GGGGCCCAGGAGGCCGGGGGGGGCGCCGCTGTAGTTGAGCACGCTGAACAGTGCCT 2042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      142 GGCATCCTGGACGCCGGGGGGGTGCGCGCGCTGCTGCGAGAGCGCCCCCTCAGTGCCT 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Feng, L., Xia, Y., Seiffert, D. and Wilson, C.B. Oxidative stress-inducible protein tyrosine phosphatase in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 25; DB 28; Length 1908;
Pred. No. 9.67e-01;
0; Mismatches 17; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rattus sp. peritoneal macrophage cDNA library.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                464 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kidney Int. 48 (6), 1920-1928 (1995) 96163253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           115. .1218
/gene="3CH134/CL100 PTPase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="3CH134/CL100 PTPase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Rattus sp."
/db_xref="taxon:10118"
                                                                                                                                                                                                                                                                                             /tissue_type="brain"
127. .1230
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             496 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7.8%;
Local Similarity 71.2%;
hes 42; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to 1912)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                115, 1218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                540 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            glomerulonephritis
```

```
/product="dual specificity phosphatase"
/db_xref="plD:g642265"
/db_xref="plD:g642265"
/db_xref="plD:g642265"
/translation="MYMEVGILDAGGLRALLRERAAQCLLLDCRSFFAFNAGHIVGSV
NVRFSTIVRRAKGAMGLEHIVPNTELRGRILAGAYHAVULDERSAALDGARRDGTL
ALAAGALCREARSTOVFFLQGGYEAFSASCPELCSKQSTPMGLSLEJSTYPDSAESG
CSSCSTPLYDQGGPVEILSFLYLGSAYHASRKDMLDALGITALINVSANCPNHFEGHY
OYKSIPVEDNHKADISSWFNBAIDFIDSIKDAGGRVEVHCQAGISRSATICLAYLMT
NRVKLDEAFFVKQRRSIISPNFSFMGQLLQFESQVLAPHCSAEAGSPAMAVLDRGTS
TTTVFNPPVSIPVHPTNSALNYLQSPITTSPSC"
1924. .1929
NVRFSTIVRRRAKGAMGLEHIVPNTELRGRLLAGAYHAVVLLDERSAALDGAKRDGTL
ALAGAGACKERRSTQYPELGGGYERSFSASCPELCSKOSTPMGLSLLPISTSVPDSAESG
CSSCSTPLYDGGGPTELSFLYLGSAYHASRKDMLDALGITALINVSANCPNHFEGHY
QYKSIPVEDNHKADISSWFNEAIDFIDSIKDAGGRVFVHCQAGISRSATICLAYLMRT
NRYKLDEAFERYKORRSIISWFSFMGQLLQFESQYLAPHCSAEAGSPAMAVLDRGTS
TTTVRNFP SIPVYPNTASIISVPHPTSFPGGT
536 F 536 F 648 9 462 F.
                                                                                                                                                                                                                                                        ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Norway rat.
Rattus norvegicus
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Eutheria; Rodentia; Sciurognathi; Myomorpha; Muridae;
                                                                                                                                                                                                                                                                                                                        2100 GGCGCCCAGGAGGCCGGGGCGCCGCCCCTGTAGTTGAGCACGCTGAACAGTGCCT 2042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Direct Submission
Submitted (17-JAN-1995) M.Muda, Glaxo Institute for Molecular
Bloidogy, 14 chemin des Aulx, CH-1228 Plan-les-Ouates, Geneva,
SWITZERLAND
                                                                                                                                                                                                                                                                                                130 GGCATCCTGGACGCCGGGGGCTGCGCGCGCTGCTGCGAGAGCGCGCCCCTCAGTGCCT 188
                                                                                                                                                                                                                                                                                                                                                                                                                                        26-JAN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Murinne, Rattus.
1 (bases 1 to 1948)
Muda,M., Schlegel,W. and Arkinstall,S.
Pathways regulating CL100 gene expression in pituitary cells
                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 25; DB 28; Length 1948;
Pred. No. 9.67e-01;
0; Mismatches 17; Indels
                                                                                                                                                                                                       Length 1912;
                                                                                                                                                                                                       Score 25; DB 28; Length 1912.
Pred. No. 9.67e-01;
0; Mismatches 17; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                 RNRNADSP 1948 bp RNA ROD
R.norvegicus mRNA for dual specificity phosphate.
X84004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        764. .1267
/gene="c1100"
/EC_number="3.1.3.48"
/note="protein-tyrosine-phosphatase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g642264
c1100 gene; protein-tyrosine-phosphatase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Rattus norvegicus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /dev_stage="adult"
/tissue_type="lung"
/clone_lib="lambda GT10"
/clone="CL100"
164. .1267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /strain="Sprague-Dawley
/db_xref="taxon:10116"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  154. .1267
/gene="c1100"
164. .135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 1 to 1948)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 2.8%;
Best Local Similarity 71.2%;
Matches 42; Conservative
                                                                                                                                                                                                       Query Match 2.8%;
Best Local Similarity 71.2%;
Matches 42; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          544 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Muda, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     polyA_signal
                                                                                                                                                                                                                                                                                                                                                                                                               15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                     BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                             S
```

ö

Gaps

ö

179 GGCATCCTGGACGCCGGGGGGCTGCGCGCGCTGCGAGAGCGCGCCGCTCAGTGCCT 237

엄

```
g,
```

Search completed: Thu Dec 24 17:24:07 1998 Job time: 4464 secs.

THIS PAGE BLANK (USPTO)

*****	(TM)	*****
*****		******
******	·	*******
***************************************		在各种的有效的,我们也是有的的,我们也有的的的,我们的的,我们的的,我们的的,我们的的现在分词,我们的的,我们的的,我们的的,我们的的,我们的的的,我们的的的,我们的的,我们的的话,我们的一个,我们的
*******		******
*****		*******
******		*******
*******		*******
*		*

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

 $\mbox{n.a.}$  .  $\mbox{n.a.}$  of atabase search, using Smith-Waterman algorithm with gap extension penalties as well as gap opening penalties

Thu Dec 24 17:24:26 1998; MasPar time 2466.70 Seconds 654.110 Million cell updates/sec not generated. Tabular output Run on:

>US-08-951-733-13
(1920-2820) from USO8951733.seq (2 of 2)
901
1920 GTCCAGACTCCGCTTCATCC......AGGCCCTGGGTGGCACGGCT 2820
CAGGTCTGAGGCGAAGTAGG......TCCGGGACCCACGTGCGGA Title: Description: Perfect Score: N.A. Sequence:

TABLE default Gap open 30; Gap extend 1 Scoring table:

Dbase 0; Query 0 STD : Nmatch 2275026 seqs, 895388244 bases x 2 Searched:

Minimum Match 0% Listing first 45 summaries Post-processing:

1:em_estl 2:em_gssl 3:em_gss2 4:em_gss3 genbank-estl07 embl-est55 Database: Database:

5:9b_est1 6:9b_est10 7:9b_est11 8:9b_est12 9:9b_est13 10:9b_est14 11:9b_est15 12:9b_est16 13:9b_est17 11:9b_est15 12:9b_est2 17:9b_est2 17:9b_est2 18:9b_est2 19:9b_est2 10:9b_est2 17:9b_est2 20:9b_est6 23:9b_est7 24:9b_est8 25:9b_est9 26:9b_gss1 27:9b_gss2 28:9b_gss3 29:9b_gss4

Mean 10.621; Variance 2.221; scale 4.783

Statistics:

SUMMARIES

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

7.58e-249 5.81e-245 1.31e-34 1.31e-38 5.39e-37 8.51e-34 4.00e-17 4.00e-17 1.10e-07 1.10e-07 Pred. No. EST182469 Jurkat T-cel zt08902.rl NCI_CGAP_GC 97SN1787 Rice Immature 97SN1787 Rice Immature 97SN1784 Rice Immature 97SN1784 Rice Immature mul3h09.rl Soares 2NbM Homo sapiens ntcon2 co T3985 MVAT4 bloodstrea T529 Trypanosoma bruce Homo sapiens ntcon6 co Homo sapiens clone ntc Description AA311750 AA281296 AA754459 AA754458 AA754458 AA70428 AA20428 AA20428 T26788 AF034177 AF038250 G Query Match Length DB 1151 159 44 44 33 33 33 26 26 26 26 26 Result O O

.10e-0 .91e-0	. 91e-0 . 08e-0	0 0 0	.08e-0 .08e-0 .56e-0	.56e	.56e-	4.56e-04 4.56e-04 4.56e-04	56e- 56e- 56e-	.56e-	4.56e-04 4.56e-04 4.56e-04 4.56e-04
Homo sapiens ntcon2 co EST191723 Normalized r EST189771 Normalized r	no sapiens ntcon6 c 56906.rl Soares mou	R-C 212 54	00r Testis 5 Hom 02818 Normalized CDNA, partial s	zebrafish e s1 Soares_N	1109.81 1d10.r1 500t Tes	on55a05.s1 Soares_NFL_ ms25a01.r1 Stratagene zs46h12.s1 NCI_CGAP_GC	panosoma br sl Gessler xl NCI_CGAF	7601.s1 NCI_CGAP 2607.r1 Soares m 4902.r1 Soares m	was mus musculus cona, coo va59a10.rl Soares mous v146b07.sl Stratagene os29f10.sl NCI_CGAP_Ki ue96b03.yl Sugano mous
AE034173 AA848961. AA799774	AF034177 AA619013 W04101	AI029813 AI103459 W69043	P 10 0	A10/0200 AA555543 AA972885	AA/16//8 AA760318 AA065280	AA947159 AA166027 AA283952	T26785 AA693472 AI083671 W90935	716 262 262	A0055221 AA270172 AA589365 AA995794 AI115886
11	10 12	15 18 21	15	12	177	333	113	2778	12 24 17
2275 301 318	660 148 299	325 358 389	405 175	312	3334	367 374 397	414 441 459 470	524 551 551	903 612 621 628 823
									99999
25 25 25	222	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	4466	2333	7333	5 5 7 3 7 3 7 3	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	00000	22333
13 14	16 17 18	19 20 21	223	226	3000	32 33	3 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	8 6 6 6	1 4 4 4 4 1 5 6 6 7 9 1
υ	υ	O	0000	ט כ	ט ט	υυ	υυυ	0000	υυυ

## ALIGNMENTS

Contact: Kerlavage,

```
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                 엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1. .389
/organism="Homo sapiens"
/note="Vector: pT7T3D-Pac (Pharmacia) with a modified
polylinker; Site_1: Not I; Site_2: Eco RI; 1st strand cDNA
was prepared from human tonsillar cells enriched for
germinal center B cells by flow sorting (CD20+, IgD-),
                                                                                          Email: arkerlavetigr.org
For clone availability, additional sequence and expression
Information related to this EST, please check the TIGR Human Gene
Index (http://www.tigr.org/tdb/hgi.html)
Seq primer: M13 Reverse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                zt08g02.r1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:712562 5', AA281296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalla; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 (bases 1 to 389)
NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
National Cancer Institute, Cancer Genome Anatomy Project (CGAP),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Contact: Robert Strausberg, Ph.D.
Tel: (301) 496-1550
Email: Robert_Strausbergenih.gov
This clone is available royalty-free through LLNL; contact the
INAGE Consortium (info@image.llnl.gov) for further information.
Insert Length: 2187 Std Brror: 0.00
Seg primer: -28ml3 rev2 ET from Amersham
High quality sequence stop: 385.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1. .409
/organism="Homo sapiens"
/note="Vector: pBluescript SK-; Site_1: EcoRI; Site_2: XhoI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2720 GGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGGGAGAACTTGCGGAAGACAGTGG 2779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61 GGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGAACTTGCGGAAGACAGTGG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 409;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                        Rockville, MD 20850 USA
                                                                                                                                                                                                                                                                                                                                                                                           5 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2780 TGAACTICCCTGTAGAAGACGAGGCCCTGGGTGGCACGGCT 2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121 TGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGGCT 161
                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 161; DB 24; 1
Pred. No. 7.58e-249;
0; Mismatches 0;
                                                                                                                                                                                                                                                                                       /db_xref="ATCC (inhost):158964"
/db_xref="taxon:9606"
/clone_lib="Jurkat T-cells VI"
/cell_type="T-lymphocyte"
-1. >409
120 c 133 g 86 t
Bioinformatics
The Institute for Genomic Research
712 Medical Center Drive, Rockvill
7el: 3018699056
Fax: 3018699423
                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                       133 g
                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 17.9%;
Best Local Similarity 100.0%;
Matches 161; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unpublished (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Tumor Gene Index
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Juman.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ношо
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7
                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                       COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                       mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NID
KEYWORĎS
                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                     BASE CC
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
```

å

```
AA754459 252 bp mRNA EST 20-JAN-1998 97SN1787 Rice Immature Seed Lambda ZAPII cDNA Library Oryza sativa cDNA clone 97SN1787, mRNA sequence.
AA754459 92801165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Oryza sativa"
/organism="Milyang23"
/note="Wilyang23"
/note="Wortor: pBluescript SK(+); Site_1: EcoRI; Site_2:
Xhoi: Directional cDNA library inserted into lambda ZAPII
vector at 5'end with EcoRI and 3' end with Xho I site."
/db_xref="taxon:4530"
/clone="975NIA87"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Oryza sativa
Eukaryotae; Viridiplantae; Charophyta/Embryophyta group;
Embryophyta; Tracheophyta; seed plants; Magnoliophyta; Liliopsida;
Poales; Poaceae; Oryza.

1 (bases 1 to 252)
Nahm,B.H., Kim,V., Cheong,J.J., Kim,S.I., Hahn,T.R, Moon,E.P.,
Kim,W.T., Kim,W.Y., Yang,M.S., Park,R.D., Sohn,U.I., Kang,K.Y.,
Lee,M.C. and Eun,M.Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Department of Cytogenetics
National Inst. of Agri. Sci. and Tech, RDA
Suwo, Kyunggido, Korea
Tel: 82 331 290 0301
Fax: 82 331 290 0307
Email: myeun@sun20.asti.re.kr
Submitted by Back Hie Nahm, Dept of Biological Science, Myongji
University, Yongin, Korea. 449-728 bhnahm@bioserver.myongji.ac.kr
Seq primer: Mi3 Reverse Primer.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Large-scale Sequencing Analysis of ESTs from Rice Immature Seed Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1920 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTA 1979
                                                                                                                                                                                                                                                                                                                                                                                                                                        231 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTA 290
                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    291 CGTCGTGGGAGCCAGAACGTTCCGCAGAGAAAAGAGGGCCGAGCGTCTCACCTCGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ő
                                                                                                                                                                                                                                                                                                                                                             Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                   0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        351 GAAGGCACTGTTCAGCGTGCTCAACTACGAGCGGGCGCG 389
                                                                                                                                                                                                                                                                                                                                                           Score 159; DB 8; I
Pred. No. 5.81e-245;
0; Mismatches 0;
                                                                                                                                                                                                                                                                                                     11
                                                                                                                                                                                                                                                                                                   123 g
                                                                                                                                                                                                                                                                                                                                                           Query Match 17.6%;
Best Local Similarity 100.0%;
Matches 159; Conservative
                                                                                                                                                                                                                                                                                 <1. .>389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Contact: Eun M.Y.
                                                                                                                                                                                                                                                                                                   87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          rice.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 3
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                 BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2040
                                                                                                                                                                                                                                                                                   mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
```

Length 252;

```
rice.
                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                요
                                                                                                                        ç
                                                                                                                                                                                                     Sp
                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Oryza sativa"
/organism="Oryza sativa"
/oultivar="Milyang23"
/note="vector: pBluescript SK(+); Site_1: EcoRI; Site_2:
XhO1; Directional cDNA library inserted into lambda ZAPII
vector at 5'end with EcoRI and 3' end with XhO I site."
/db_xref="taxon:4530"
/clone="97SN1787"
/clone="97SN1787"
/clone="97SN1787"
/clone="97SN1787"
/clone="97SN1787"
/clone="97SN1787"
/clone="107SNE"
/dev_stage="5" days after pollination"
/dev_stage="5" days after pollination"
/lab_host="E. coll SoLR"
/lab_host="E. coll SoLR"
/lab_host="E. coll SoLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AA754459 252 bp mRNA EST 20-JAN-1998 97SN1787 Rice Immature Seed Lambda ZAPII cDNA Library Oryza sativa CDNA clone 97SN1787, mRNA sequence.
AA754459 92801165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Oryza sativa

Eukaryotae; Viridiplantae; Charophyta/Embryophyta group;
Embryophyta; Tracheophyta; seed plants; Magnoliophyta; Liliopsida;
Poales; Poaceae; Oryza.
1 (bases 1 to 252)
Nahm, B.H., Kim, J.K., Cheong, J.J., Kim, S.I., Hahn, T.R. Moon, E.P.,
Kim, W.T., Kim, W.Y., Yang, M.S., Park, R.D., Sohn, U.I., Kang, K.Y.,
Lee, M.C. and Eun, M.Y.
Department of Cytogenetics
National Inst. of Agri. Sci. and Tech, RDA
Suwon, Kyunggido, Korea
Tel: 82 331 290 0301
Fax: 82 331 290 0307
Fax: 82 311 290 0307
Faxil: myeun@sun20.asti.re.kr
Submitted by Baek Hie Nahm, Dept of Biological Science, Myongji
University, Yongin, Korea. 449-728 bhnahm@bioserver.myongji.ac.kr
Seq primer: M13 Reverse Primer.
                                                                                                                                                                               ö
                                                                                                                                                                                                                                        1947 TGACGGCTGCGGCCGGATTGTGAACATGGACTACGTCGTGGGAGCCAGAACGTTCCGCAG 2006
                                                                                                                                                                                                                                                                                                                       Large-scale Sequencing Analysis of ESTs from Rice Immature Seed
Unpublished (1998)
                                                                                                                                                                                                                                                                                               89 VGNHTRCSRWRBVTRMAHYHDYINCBBYNNNDYHWWHBBMYBBTGCMTCTMWCWBHYNTK 148
                                                                                                                                                                                                                                                                                                                                                                          149 CTASGWHTSTNYDVKSSTNTWGVTBSYDKSMHGYWCSBBVKYHTKVSTTRATRSYTCVRK 208
                                                                                                                                                                                                                   29 BVWVCVASHGNYMSVHNCIBRGIHCDCKNVNWSIMIWGIVNWBNVSGDWHYWBVBNIKVD 88
                                                                                                                                                                               ô
                                                                                                                                        Length 252;
                                                                                                                                    Score 49; DB 12; Length 252
Pred. No. 7.23e-42;
99; Mismatches 88; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2127 CAGGGCCTGGCGCACCTTCGTGCTGCGTGT 2156
                                                                                                                                                                                                                                                                                                                                                                                                                                                        209 YCVMWMTKKVVKKYHVVBBGCHBTDSKCKT 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                      Query Match 5.4%;
Best Local Similarity 11.0%;
Matches 23; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Eun M.Y
                                                                                 Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  rice.
                                                                                                                                                                             23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
COMMENT
                                                                                 BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                   ORIGIN
                                                                                                                                                                                                                     윱
                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                        임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                          à
```

```
AA754458 247 bp mRNA EST 20-JAN-1998 97SN1784 Rice Immature Seed Lambda ZAPII cDNA Library Oryza sativa cDNA clone 97SN1784, mRNA sequence. AA754458 92801164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism-"Oryza sativa"
/cultivar-"Milyang23"
/note-"Vector: pBluescript SK(+); Site_1: EcoRI; Site_2:
/hote-"rectional cDNA library inserted into lambda ZAPII
vector at 5'end with EcoRI and 3' end with Xho I site."
/db_xref-"taxon:4530"
/clone-"97SN1784"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Oryza sativa
Eukaryotae; Viridiplantae; Charophyta/Embryophyta group;
Eukaryotae; Viridiplantae; Charophyta/Embryophyta group;
Eukaryotae; Viridiplantae; seed plants; Magnoliophyta; Liliopsida;
Poales; Poaceae; Oryza.
1 (bases 1 to 247)
Nahm,B.H., Kim,J.K., Cheong,J.J., Kim,S.I., Hahn,T.R, Moon,E.P.,
Kim,W.T., Kim,W.Y., Yang,M.S., Park,R.D., Sohn,U.I., Kang,K.Y.,
Lee,M.C. and Eun,M.Y.
Large-scale Sequencing Analysis of ESTs from Rice Immature Seed
Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Department of Cytogenetics
National Inst. of Agri. Sci. and Tech, RDA
Suwon, Kyunggido, Korea
Suwon, Kyunggido, Korea
Tel: 82 331 290 0301
Fax: 82 331 290 0301
Fax: 82 bani: myeun@sun30.asti.re.kr
Summitted by Baek Hie Nahm, Dept of Biological Science, Myongji
University, Yongin, Korea. 449-728 bhnahm@bioserver.myongji.ac.kr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /clone_lib="Rice Immature Seed Lambda ZAPII cDNA Library"
                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                           2695 GGTGAGGTGTCACCAACAAGAAATCATCCACCAACGAGGAGCAGCAGCCCGCCGAA 2636
                                                                                                                                                                                                                                                                                                                                                                                                                         2635 TCCCCGCAAACAGCTTGTTCTCCATGTCGCCGTAGCACAGCTGCAGAGCAGCGTGGAGA 2576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WMNKHTHMMTBBWCCVRRVGTTTNNGKHNGRTTTWNDCSDNAHCRYTVBWYYARSKYGYG 78
                                                                                                                        23 YBCHGNBVWVCVASHGNYMSVHNCTBRGTHCDCKNVNWSTMTWGTVNWBNVSGDWHYWBV
                                                                                                                                                                                                                                                 83 BNTKVDVGNHTRCSRWRBVTRMAHYHDYTNCBBYNNNDYHMWHBBMYBBTGCMTCTMWCW
                                                                                                                                                                                                                                                                                                                                                                      143 BHYNTKCTASGWHTSTNYDVKSSTNTWGVTBSYDKSMHGYWCSBBVKYHTKVSTTRATRS
                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2575 GGAIGGAGCCCTGGGAICCCCTGGCACTGGACGTAGGACTTGCCCCTG 2526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           203 YTCVRKYCVMWMIKKVVKKYHVVBBGCHBIDSKCKIMWMINKHVMISTID 252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 247;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        169 others
Query Match 5.2%; Score 47; DB 12; Length 252 Best Local Similarity 10.0%; Pred. No..1.31e-38; Matches 23; Conservative 107; Mismatches 100; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 46; DB 12; Length 247
Pred. No. 5.39e-37;
92; Mismatches 89; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /tissue_type="Immature Seed"
/dev_stage="5 days after pollination"
/lab_host="E. coli SOLR"
/lab_host="E. 21 g 34 t 169 otl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 5.1%;
Best Local Similarity 12.6%;
Matches 26; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Contact: Eun M.Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
```

```
Mus musculus
                                                                                                                                                                                      house mouse.
                                                        sequence.
                                                                                                                       11795738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | |||
GCCAC 2511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   204 GTCAC 208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                       ACCESSION
NID
                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2507
                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                      SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AA754458 247 bp mRNA EST 20-JAN-1998 97SN1784 Rice Immature Seed Lambda ZAPII cDNA Library Oryza sativa cDNA clone 97SN1784, mRNA sequence.
AA754458 92801164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryotae; Viridiplantae; Charophyta/Embryophyta group;
Bubryophyta; Tracheophyta; seed plants; Magnoliophyta; Liliopsida;
Poales; Poaceae; Oryza.
1 (bases 1 to 247)
1 (bases 2 to 247)
1 (bases 2 to 247)
1 (bases 3 to 247)
1 (bases 4 to 247)
1 (bases 5 to 247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Department of Cytogenetics
Mational Inst. of Agr1. Sci. and Tech, RDA
Suwon, Kyunggido, Korea
Tel: 82 331 290 0301
Fmax: 82 331 290 0307
Fmail: myeun&sun20.asti.re.kr
Submitted by Baek Hie Nahm, Dept of Biological Science, Myongji
University, Yonghin, Rorea. 449-728 bhnahm@bioserver.myongji.ac.kr
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                      :| ::|:| :| :: | :: | 2471 GCAGTGGCTCTTCGAGGCTTCATGTGCCACCACGCGGTGCGCATCAGGG 2530
                                                              2133 GGCCCTGTGGGATAICGTCCAGGCCCAGGAGGCGCCCAGGAGGCCGGGGCGCCGCGCC 2074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Large-scale Sequencing Analysis of ESTs from Rice Immature Seed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     111 SNSVVYVWBTAYCDYBHYBDRANHVDDTRCTNDRGYCNYTASDNGTSATKRVTGYDKTDS 170
                            79 IBYYSWNVDINIGGIGVGKTIVNVHSGWNNRCSNSVVYVWBIAYCDYBHYBDRANHVDDI 138
                                                                                                                                                RCTNDRGYCNYTASDNGTSATKRVTGYDKTDSDCGGGCWRKVTYGSSBYBRCGVNVMVRT 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        171 DCGGGCWRKVTYGSSBYBRCGVNVMVRTTSMWTDKSTKMBSMDMSRRSRV 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 44; DB 12; Length 247;
Pred. No. 8.51e-34;
60; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                          2531 GCAAGTCCTACGTCCAGTGCCAGGGGA 2557
                                                                                                                                                                                                                                                                    199 TSMWTDKSTKMBSMDMSRRSRVHYGRW 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 4.9%;
Best Local Similarity 12.7%;
Matches 14; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Eun M.Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Oryza sativa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rice.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                             139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Сp
                            윱
                                                                                       ö
                                                                                                                                          셤
                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
```

RESULT

```
Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Galsel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCUS AF034173 2275 bp mRNA EST 22-DEC-1997 DEFINITION Homo sapiens ntcon2 contig mRNA, partial sequence, mRNA sequence.
AA200728 375 bp mRNA EST 19-FEB-1997 mul3h09.rl Soares 2NbMT Mus musculus cDNA clone 639329 5', mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This clone is available royalty-free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                 WashU-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
7el: 314 286 1800
Fax: 314 286 1810
Email: mouseest@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 375;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches 16; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 33; DB 23;
Pred. No. 4.00e-17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MGI:391321
Seq primer: -28M13 rev2 from Amersham
High quality sequence stop: 361.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     95
                                                                                                                                                                                                                                                                                                                                                                                                                                  Contact: Marra M/Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /clone_lib="Soares 2NbMT"
/sex="male"
                                                                                                                                                                                                                                                                                                                                           Waterston, R.
The WashU-HHMI Mouse EST Project
Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /db_xref="taxon:10090'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /tissue_type="Thymus"
/dev_stage="4 weeks"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   105 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone="639329"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Match 3.7%;
Local Similarity 75.4%;
Les 49; Conservative
                                                                                                                                                                                                                              .
(bases 1 to 375)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <1. .>375
95 c
```

```
Tel: 3193356918
Fax: 3193356764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     103 a
                                                                                                                                                    86
                                                                                                                                                                                                                                                                                                                                                                                                                                            g781238
                                                                                                                                                                                                                                                                                                                                                          12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1
                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
COMMENT
                                                                                                                                                    BASE COUNT
                                                                                                                                      mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       III RNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                       윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                  boundary
Unpublished
Unpublished
2 (bases 1 to 2275)
Tripodis,N. and Ragoussis,J.
Direct Submission
Submitted (13.NoV-1997) Division of Medical and Molecular Genetics,
Guy's Hospital, 7th floor, Guy's Tower, London SEI 9RT, UK
Location/Qualifiers
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 (bases 1 to 343) ... and Majiwa, P.A.O. Generation of expressed sequence tags as physical landmarks in the genome of Trypanosoma brucei
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Trypanosoma brucei rhodesiense.
Trypanosoma brucei rhodesiense
Eukaryotae; mitochondiial eukaryotes; Euglenozoa; Kinetoplastida;
Trypanosomatidae; Trypanosoma.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1523 RGMKKCWKYRKYKKYTSTYYKSWSRWYWYTTYTWYCWCCTSMKSASCAMMRWGYMGSR 1582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AA098755 343 bp mRNA EST 28-OCT-1996 T3985 MVAT4 bloodstream form of serodeme WRATatl.1 Trypanosoma brucei rhodesiense cDNA 5' similar to gi|477308|pir||A48583 ribosomal protein S11, mRNA sequence. AA098755 g1644707
                                                                              Eukaryotae; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 2275)

Tripodis,N. and Ragoussis,J.
Generation of a transcription map in the region immediately centromeric to human MHC across the 6p21.2-6p21.3 chromosomal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 2275;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Trypanosoma brucei rhodesiense"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           149 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 33; DB 11; Length 227
Pred. No. 4.00e-17;
47; Mismatches 25; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Molecular Biology Unit
International Livestock Research Institute
P.O. Box 30709, Nairobi, Kenya
Tel: 254-2 630743
Fax: 254-2 631499
Email: p.majiwaecgnet.com
Seq primer: T3 primer.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                            /map="opinion"
/clone="ntcon2 contig"
/tissue_type="liver; brain"
/dev_stage="fetus"
/note="similar to Br140"
a 619 c 470 g 599.t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         599.t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2708 AAACCTTCCTCAGGACCCTGGTC 2730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1583 SSRSYWGYWGSMSGCYGMTKRYY 1605
                                                                                                                                                                                                                                                                                                                                                                                       /map="6p21.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 3.7%;
Best Local Similarity 13.3%;
Matches 11; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Contact: Majiwa PAO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished (1996)
                                                                  Homo sapiens
AF034173
g2707735
                                                  human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 σ
                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCUS
DEFINITION
                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                                                                                                 REFERENCE
AUTHORS
                                                                                                                                                                                                 JOURNAL
REFERENCE
ACCESSION
                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NID
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                             KEYWORDS
                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
```

```
African trypanosome primer-T3 primer library-WNAT4 bloodstream form of serodeme WRAT4.1. vector-Landod 2AP II (Stratagene)
RSitel-EcorI RSite2-Xho! The mRNA was purified from a cloned population of bloodstream trypanosomes reexpressing the MVAT4 metacyclic variant surface glycoprotein (VSG). A unidirectional coligo dT-primed EcoRI/XhoI cDNA library was constructed in lambda 2AP II (Stratagene).
/note="Vector: Lambda ZAP II (Stratagene); Site_1: EcorI; Site_2: XhoI; The mRNA was purified from a cloned population of bloodstream trypanosomes reexpressing the MVAT4 metacyclic variant surface glycoprotein (VSG). A unidirectional oligo dT-primed EcoRI/KhoI cDNA library was constructed in lambda ZAP II (Stratagene)."

/db_xref="taxon:31286"
/clone_lib="MVAT4 bloodstream form of serodeme WRATatI.1"
77 c 86 g 82 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           John Donelson's Laboratory
Howard Hughes Medical Institute
300 EMRB, Dept. of Biochemistry, University of Iowa, Iowa City, IA
                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Trypanosoma brucei rhodesiense
Eukaryotae; mitochondrial eukaryotes; Euglenozoa; Kinetoplastida;
Trypanosomatidae; Trypanosoma; Trypanosoma brucei.
1 (bases 1 to 396)
El-Sayed,N.M.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AF034177 660 bp mRNA EST 22-DEC-1997
Homo sapiens ntcon6 contig mRNA, partial sequence, mRNA sequence.
AF034177
g2707739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   126788 396 bp mRNA EST 06-NOV-1995
protein S11 homolog.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cDNA expressed sequence tags of Trypanosoma brucei rhodesiense provide new insights into the biology of the parasite Mol. Biochem. Parasitol. 73, 75-90 (1995)
                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                            Length 343;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     2307 CCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCCTTCAAGAGCCACGT 2354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              brucei rhodesiense"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 396;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 26; DB 19; Length 396
Pred. No. 1.10e-07;
0; Mismatches 11; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 89 CCAGACGCCGTCAATGAGAACATTCGCACGGCCTCCAAGAAGCACGT 136
                                                                                                                                                                                                                                                                                                                                                                                                                          237 CCAGACGCCGTCAATGAGAACATTCGCACGGCCTCCAAGAAGCACGT 284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13 others
                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches 11; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2307 CCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCCTTCAAGAGCCACGT
                                                                                                                                                                                                                                                                                                                         Score 26; DB 22; I
Pred. No. 1.10e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Email: nelsayed@vaxa.weeg.uiowa.edu.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1. .396
/organism="Trypanosoma
<1. .>396
1 101 c 87 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Contact: El-Sayed NMA
                                                                                                                                                                                                                                                                                                                      Query Match 2.9%;
Best Local Similarity 77.1%;
Matches 37; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 2.9%;
Best Local Similarity 77.1%;
Matches 37; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
ACCESSION
NID
```

US-08-951-733-13-03.rst

```
Query Match 2.9%;
Best Local Similarity 10.0%;
Matches 6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               619 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Lee, NH
                       |: |: :: :: 2037 GGTGAAGGCACTG 2049
 456 GSAGVTVNHHDWS 468
                                                                                                                                                                                                                                                                                                                                                    Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Rattus sp
                                                                                                                                                                                             human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gene
                                                                                     RESULT 13
                                                                                                                      DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
                                                                                                                                                                                            SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Сp
 음
                                   ŏ
                                                                                                                                                      boundary
Unpublished
Unpublished
2 (bases 1 to 660)
Tripodis,N. and Ragoussis,J.
Direct Submission
Submitted (13-NoV-1997) Division of Medical and Molecular Genetics,
Guy's Hospital, 7th floor, Guy's Tower, London SEI 9RT, UK
Location/Qualifiers
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryotae; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhin; Hominidae; Homo.
1 (bases 1 to 1287)
1 Tripodis,N. and Ragoussis,J.
Direct Submission
Submitted (12-DEC-1997) Division of Medical and Molecular Genetics, Guy's Hospital, 7th floor, Guy's Tower, London SEI 9RT, UK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AFU38250 1287 bp mRNA EST 29-JAN-1998
HOMMO Sapiens clone ntcon9 mRNA, partial sequence, mRNA sequence.
AF038250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cy 1977 CTACGTGGGAGCCAGAACGTTCCGCAGAAAAAGAGGGCCGAGCGTCTCACCTCGAG 2036
                                                Eukaryotae; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Primates; Catarthin; Hominidae; Homo. 1 (bases 1 to 660)
Tripodis,N. and Ragoussis,J. Generation of a transcription map in the region immediately centromeric to human MHC across the 6p21.2-6p21.3 chromosomal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 396 VICBCDCBTGGGDTBSHBVCMCBCBANADGATBATCGKVGGVBGASTCMTHYNCCDCKTC 455
                                                                                                                                                                                                                                                                                                                                                                             /close="atcone contig"
/tissue_type="fetal brain; fetal liver; adult muscle"
/note="similar to CutA"
/note="similar to T3 g 109 t 55 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 1287;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2127 CAGGGCCTGGCGCACCTTCGTGCTGCGTGCGGGCCCAGGACCCGCC 2174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 660;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       383 SWSSRCCYRSYGMYHYYYCYYKKCDMSCTTSKSRWYKSKRSWCDCDMC 430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                65 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ouery Match 2.9%; Score 26; DB 12; Length 128
Best Local Similarity 26.0%; Pred. No. 1.10e-07;
Matches 19; Conservative 29; Mismatches 25; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 26; DB 11; Length 660
Pred. No. 1.10e-07;
29; Mismatches 11; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /chromosome="6"
/map="6p21.3"
/clone="ntcon9"
/dev_stage="fetal"
/tissue_type="brain; liver"
/note="similar to HSRP20"
a 219 c 293 g 361 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                /map="6p21.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 2.9%;
Best Local Similarity 16.7%;
Matches 8; Conservative
                                   Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 . uman
                 human.
                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
ORIGIN
                                  ORGANISM
                                                                                  REFERENCE
AUTHORS
TITLE
                                                                                                                                                                      JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
KEYWORDS
                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
```

```
2 (bases 1 to 2275)
Tripodis,N. and Ragoussis,J.
Direct Submission.
Submitted (13-NOV-1997) Division of Medical and Molecular Genetics, Guy's Hospital, 7th floor, Guy's Tower, London SE1 9RT, UK
Location/Qualifiers
AF034173 2275 bp mRNA EST 22-DEC-1997 AF034173 apriens ntcon2 contig mRNA, partial sequence, mRNA sequence. q2707735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AA848961 301 bp mRNA EST 30-APR-1998 EST191723 Normalized rat lung, Bento Soares Rattus sp. cDNA clone RLUA144 3' end, mRNA sequence.
AA848961 92936501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Rattus sp.

Bukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;

Rodentia; Sciurognathi; Muridae; Murinae; Rattus.

1 (bases 1 to 301)

Lee, N. H., Glodek, A., Chandra, I., Mason, T. M., Quackenbush, J.,

Kerlavage, A. R. and Adams, M.D.

Rat Genome Project: Generation of a Rat EST (REST) Catalog & Rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1483 RWKRRKGRRKRMTGMYKRMYRAMMAMCAMMACWWYYWKMRGMKKCWKYRKYKKYTSTYY 1542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2703 GTGGGTGAGGTGAGGTGTCACCAACAAGAAATCATCCACCAAAAGGAGGAGCAGCCCGTC 2644
                                                                                                                                                                    Homo sapiens
Eukaryotae; Matazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Primates; Catarrhini; Hominidae; Homo.
1 (Dases 1 to 227);
Tripodis,N. and Ragoussis,J.
Generation of a transcription map in the region immediately centromeric to human MHC across the 6p21.2-6p21.3 chromosomal boundary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The Institute for Genomic Research 9712, Medical Center Drive, Rockville, MD 20850, USA Tel: (301)-838-3529 Fax: (301)-838-0208 Email: nhlee@tigr.org
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 26; DB 11; Length 2275;
Pred. No. 1.10e-07;
37; Mismatches 17; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            149 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            599 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /clone="ntcon2 contig"
/tissue_type="liver; brain"
/dev_stage="fetus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1. .2275
/organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="similar to Br140"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         470 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /map="6p21.3"
```

Seq primer: M13-21

```
AA799774 318 bp mRNA EST 30-APR-1998 EST189271 Normalized rat heart, Bento Soares Rattus sp. cDNA clone RAFAF18 3' end, mRNA sequence. AA799774 92862729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Rattus sp.
Rattus sp.
Rattus sp.
Rattus sp.
Rattus sp.
Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
1 (bases 1 to 318)
Lee, N.H., Glodek, A., Chandra, I., Mason, T.M., Quackenbush, J.,
Rarlavage, A.R. and Adams, M.D.
Rat Genome Project: Generation of a Rat EST (REST) Catalog & Rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1. .318
/organism="Rattus sp."
/organism="Rattus sp."
/organism="Rattus sp."
/organism="Rattus sp."
/ob_xref="ATCC (inhost):2006734"
/db_xref="ATCC (inhost):2006734"
/db_xref="Rattor"
/db_xref="Rattor"
/db_xref="Normalized rat heart, Bento Soares"
a 113 c 94 g 57 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2042 AGGCACTGTTCAGCGTGCTCAACTACGAGCGGCGCGCGCCCCGGCCTCCTGGGCGCC 2100
                              /cranism="Rattus sp."
/organism="Rattus sp."
/note="Organ: lung; Vector: pT/T3Pac; Site_1: EcoRI; Site_2: Not!"
/db_xref="Arco: (inhost):2007989"
/db_xref="Arco: (inhost): Adb_xref="Arco: (inhost): Ad
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               104 AGGCACTGAGCGGCGCGCTCTCGCAGCAGCGCGCGCAGCCCCCGGGCGTCCAGGATGCC 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 25; DB 14; Length 318;
Pred. No. 1.91e-06;
0; Mismatches 17; Indels 0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATCC
The Institute for Genomic Research
9712, Medical Center Drive, Rockville, MD 20850, USA
Tel: (301)-838-3529
Fax: (301)-838-0208
Email: nhlee@tigr.org
Seq primer: M13-21.
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 301;
                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 25; DB 14; Length 301
Pred. No. 1.91e-06;
0; Mismatches 17; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 2.8%;
Best Local Similarity 71.2%;
Matches 42; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 2.8%;
Best Local Similarity 71.2%;
Matches 42; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Contact: Lee, NH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gene Index
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ಹ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                              BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NID
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   엺
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                පු
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

Search completed: Thu Dec 24 18:28:41 1998 Job time : 3855 secs.

THIS PAGE BLANK (USPTO)

**************************************		13
	ر	, t-
	) (	1 -
	ນ (	10
	ບ	γ <del>α</del>
	υ	9 6
	٠	20
	)	21
(ME)   -   -   -   -   -   -   -   -   -		22
	U	23
***************************************		24
	υ	25
Release 3.1A John F. Collins, Biocomputing Research Unit.		26
Copyright (c) 1993-1998 University of Edinburgh, U.K.		27
Distribution rights by Oxford Molecular Ltd		28
,	υ	29
- n.a. database search, using smit		30
with gap extension penalties as well as gap opening penalties	o	31
Bun on. Thu Dec 2/ 18.30.6/ 1008. MacDar +im. 27/ 67 connade	,	200
	נ	24
Tabular output not denerated		, t
	ر 	3.5
Title: >US-08-951-733-13		37
		38
ct Score: 901		39
nce: 1920	υ	40
Comp: CAGGTCTGAGGCGAAGTAGGTCCGGGACCCACCGTGCCGA		41
	υ	42
٠		Α,
cap open 30; cap extend 1	U (	4 4
Nmatch SID : Dbase 0: Ouerv 0	נ	·
Searched: 188442 segs, 68026449 bases x 2		
Dost-processing: Minimim Match OB	oga	DECITE T
Tisting first As summaring	S C	7777
1	A C	051746
Database: n-qeneseq32	2 5	31 - MAY
	a D D	Oligon
:part9	KW	01190
14:part14 15:part15 16:part16 17:part17 18:part18	KW	ss.
20;part20 21:part21 22:part22	so	Synthe
25:part25 26:part26 27:part27	PN	EP-571
30:part30 31:part31 32:part32	PD	01-DEC
35:part35 36:part36	PF	24 - MAY
39:part39 40:part40	PR	26-MAY

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Mean 8.771; Variance 5.114; scale 1.715

Statistics:

No. Score Match Length DB ID   Description   Pred. No. No. Score Match Length DB ID   Description   Pred. No. No. Score Match Length DB ID   Description   Pred. No. No. Score Match Length DB ID   Description   Pred. No. No. No. No. No. No. No. No. No. No	Pred. No.	7.51e-12	3.02e-11	.20e-10	5e-10	3e-09	8e-08	16e-07	6e-07	.06e-07	.06e-07	.06e-07	.00e-07
Score Match Length DB ID  43 4.8 91 9 051746  44 4.6 204 1 N81164  40 4.4 204 1 N81164  537 4.1 114 12 070465  536 4.0 114 12 070466  536 4.0 114 12 070466  536 4.0 114 12 070466  536 4.0 114 12 070466  536 4.0 114 12 070467  537 4.1 114 12 070466  538 4.0 114 12 070467  538 4.0 114 12 070467  539 3.9 114 12 070467	Pre	:		_	_		2.7	7.0	7.0	1.0	1.0	7	4.0
Score Match Length DB  43 4.8 91 9  42 4.7 91 9  41 4.6 204 1  43 4.2 114 12  37 4.1 114 12  36 4.0 114 12  36 4.0 114 12  36 4.0 114 12  36 4.0 114 12  36 4.0 114 12  36 4.0 114 12  36 4.0 114 12  36 4.0 114 12  36 4.0 114 12  36 4.0 114 12	Description	Olidonucleotide probe	Oligonucleotide probe	Base substituted E.co	Base substituted E.co	Generic DNA sequence	DNA	DNA	DNA	DNA	DNA	DNA	DNA
Score 442 443 441 441 441 441 441 441 36 37 36 36 36 36 36 36 36 36 36 36 36 37 36 36 36 36 36 36 36 36 36 36 36 36 36		051746	051746	N81164	N81164	070465	070469	070467	970468	970466	970467	070470	070469
Score 442 443 441 441 441 441 441 441 36 37 36 36 36 36 36 36 36 36 36 36 36 37 36 36 36 36 36 36 36 36 36 36 36 36 36	DB	6	σ	-	٦	12	12	12	15	12	12	12	12
Score 442 443 441 441 441 441 441 441 36 37 36 36 36 36 36 36 36 36 36 36 36 37 36 36 36 36 36 36 36 36 36 36 36 36 36	Length	91	91	204	204	114	114	114	114	114	114	114	114
	Query Match	4.8	4.7	4.6	4.4	4.2	4.1	4.0	4.0	4.0	4.0	4.0	3.9
Result No	Score	43	42	41	40	38	37	36	36	36	36	36	35
# 00 <u>.</u> 000	No.	Н	7	m	4	Ŋ	ø	7	œ	σ	10	11	12
	Res		υ	υ							Ü	U	O

RESULT

99999999999999999999999999999999999999	, ° °
3 3 3 3 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6	for MK14 but Gaps 64
ic DNA sequence in DNA sequenc	disease diagnosis;  ycobacteria - used la nucleic acid in nucleotides 5-95 of cobacteria tested, pp. The probe may terial infection. 3; 4 T; 9; Length 91; 1e-12; as 6; Indels 0, hvvhhvhyhyvysvctca ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
070470 Genez 070468 Genez 070468 Genez 070461 Genez 070471 Genez 070472 Genez 070473 070473 Humar 0713613 DC43	ALIGNMENTS  91 BP.  LY)  KI4.A  Obe; mycobacteria;  Chion of Mycobacteria  English.  KI4.A consists of n  Chion of mycobacterial spp. of my  non-mycobacterial so  Screen for mycobac  O51747-59.  A; 17 C; 15 G  B%; Score 43; DB  Ry Fred Mycobacterial  Screen for mycobac  O51747-59.  A; 17 C; 15 G  Why hyby by coveryhyby  Why hyby by coveryhyby  ScccedeGACGCCCAGGGCCCGCGCCCCCCCCCCCCCCCCCCCC
11114 11114 11114 11114 11114 11117 11117 11117 11117 11117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1117 1	entry, be MK14 a probe MK14 a probe MK14 a probe ficaticaticaticaticaticaticaticaticaticat
	rist prob prob prob prob prob prob prob prob
######################################	1746 1746 1746 1746 1746 1746 1746 1746
44444444444444444444444444444444444444	SU
	SOCCOS PARAPARA SE SOS SOS SOS SOS SOS SOS SOS SOS SOS

N

```
Best Local Similarity 18.8%;
Matches 27; Conservative
                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                               primer_bind
                                                                                                                                                 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                 S,
                                                                                            윱
                                                                                                                      g
                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure; p. English.

C. Random point mutations were introduced into the alpha fragment of E coil beta-galactosidase. The will type sequence was obtained as a single stranded template and an oligonucleotide was hybridised to it of generate a popn of DNA molecules which terminate at all possible nucleotide positions within a specified region. The variable 3 ends generated in this way are used as primers for reverse transcriptase and the molecules are misincorporated by the transcriptase and the molecules are completed to forms that can be amplified and then expressed in a suitable host-vector system. The sequence covers all 176 difft base substitutions, most of which course also p80575.

O sequence 204 BP; 21 A; 47 C; 17 G; 11 T; 108 Others;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    03-APR-1987; US-034819.
(SUSO) SUOMEN SOKERI OY.
Lehtovaara P, Knowles J, Koivula A, Bamford J, Reinikainen T;
WPI; 88-279927440.
Introducing random point mutations into nucleic acods -
by prepn of single stranded template, annealing a primer, elongation, misincorporation, completion of molecules and screening.
                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             08-NoV-1990 (first entry)
asse substituted E.coli beta-galactosidase alpha-fragment.
E.coli beta galactosidase alpha-fragment; base substitutions; ss.
Escherichia coli.
                                                                                                                                                                                       for
                                                                                                                                                                                                                                                                                                                                                                                                          7 ggcgssvhsyyvvhvvshhhsvhhvvhhvhvsvvvvhhvvhvvhhvhyhvyvsv 60
                                                                                                                                                                                                                           Claim 3; Page 14; 23pp; English.
Oligonuclectride probe MK14-A consists of nucleotides 5-95 of 10 (51735). It hybridized to all spp. of mycobacteria tested, cross reacted to a few non-mycobacterial spp. The probe may be useful as an initial screen for mycobacterial infection. See also Q51735-45 and Q51747-59.
Sequence 91 Bp; 5 A; 17 C; 15 G; 4 T;
                       31-MAY-1994 (first entry)
Oligonucleotide probe MK14-A
Oligonucleotide; DNA probe; mycobacteria; disease diagnosis;
                                                                                                                                           (BECT ) BECTON DICKINSON CO.
Shank DD, Spears PA;
WPI; 93-378844/48.
New Oligo:nucleotide probes specific for Mycobacteria - used
detection and amplification of Mycobacteria nucleic acid in
                                                                                                                                                                                                                                                                                                                                                               6; Indels
                                                                                                                                                                                                                                                                                                                                     Length 91;
                                                                                                                                                                                                                                                                                                                                     Score 42; DB 9; Le
Pred. No. 3.02e-11;
45; Mismatches 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'function-multiple cloning site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N81164 standard; DNA; 204 BP.
N81164;
 BP.
                                                                                                                                                                                                                                                                                                                                   4.78;
                                                                                                                                                                                                                                                                                                                                                 larity 5.6%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19..69
/*tag= a
standard; cDNA; 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       187..204
/*tag= b
                                                                                                       01-DEC-1993.
24-MAY-1993; 108325.
26-MAY-1992; US-889651.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             05-MAY-1988.
30-MAR-1988; 105163
                                                                                                                                                                                                                                                                                                                                              Best Local Similarity
Matches 3; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                             Synthetic.
EP-571911-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EP-285123-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       primer_bind
                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                  samples
                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
 윱
                                                                                                                                                                                                                                                                                                                                                                                                                  S
```

Score 41; DB 1; Length 204;

4.68;

Query Match

```
2033 GAGGTGAGACGCTCGGCCCTCTTTTCTCTGCGGAACGTTCTGGCTCCCACGACGTAGTCC 1974
                                                                              aggnyccccgggywccgagcycgaayycdchvgccgymrttthhyrrmrbnvyrdynrsd 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          80 hvgccgymrttthhyrrmrbnvyrdynrsdaaawyccyrrsvkydccynachhddhyvyb 139
                                                                                                                                                                                                      aaawyccyrrsvkydccynachhddhyvybbbvynvhnhnncncccbnnhvchnvhbnnh 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 88-279927/40.
Introducing random point mutations into nucleic acods -
by prepn of single stranded template, annealing a primer, elongation,
misincorporation, completion of molecules and screening.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Generic DNA sèquence to génerate a random TSAR petide library.
TSAR; totally synthetic affinity reagent; synthetic; binding domain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Random point mutations were introduced into the alpha fragment of E.coli beta-galactosidase. The wild type sequence was obtained as a single stranded template and an oligonucleotide was hybridised to it to generate a popn of DNA molecules which terminate at all possible nucleotide positions within a specified region. The variable 3' ends generated in this way are used as primers for reverse transcriptase. Nucleotides are misincorporated by the transcriptase and the molecules are completed to forms that can be amplified and then expressed in a suitable host-vector system. The sequence covers all 176 difft base substitutions, most of which
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Base substituted E.coli beta-galactosidase alpha-fragment.
E.coli beta galactosidase alpha-fragment; base substitutions; ss.
Escherichia coli.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17 G; 11 T; 108 Others;
                           ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     05-MAY-1988.
30-MAR-1988; 105163.
03-MAP-1987, US-034819.
(SUSO) SUOMEN SOKERI OY.
Lehtovaara P, Knowles J, Koivula A, Bamford J, Reinikainen T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2492 TCCTACGCTTCATGTGCCACCACCACGCGGATCAGGGGCAAGTCCTAC 2541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            140 bbvynvhnhnncncccbnnhvchnvhbnnhrnwayvrhdarrddvhccvc 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 40; DB 1; Length 204; Pred. No. 4.75e-10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       59; Mismatches 42; Indels
Pred. No. 1.20e-10;
58; Mismatches 59; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19..69
/*tag= a
/function=multiple cloning site
187..204
/*tag= b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       occurred singularly in any given mutant. See also 806575. Sequence 204 BP: 21 A. 77. "77"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                         :::::| ::::| ::::|
1973 ATGTTCACAATCGGCCGCAGCCCG 1950
                                                                                                                                                                                                                                                                                                                     rnwayvrhdarrddvhccvchccg 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LT 5
070465;
070465;
05-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N81164 standard; DNA; 204 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4.4%;
Similarity 8.2%;
9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   08-NOV-1990 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MERKI
```

```
18-AUG-1994.
01-FEB-1994; U
01-FEB-1993; U
30-DEC-1993; U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q70467;
05-APR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO9418318-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Terrifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins

PT screening a recombinant vector library expressing fusion proteins

PT screening a recombinant vector library expressing fusion proteins

PT screening a recombinant vector library expressing fusion proteins

PT screening a binding domain and an effector domain

Disclosure; Page 35; 25pp; English.

CO 70465 is a generic DNA Sequence used to generate random TSAR (Totally

CO 77455 is a generic DNA Sequence used to generic formula can also be

CC And Y are flanking restriction sites (X is not the same as Y) that are

CC onter specified further. Other generic sequences are shown in Q70466-68.

CC onter specified further or generic sequences are shown in

CR 55151-54. TSARs are concatenated by these generic sequences are shown in

CR 55151-54. TSARs are concatenated by these generic sequences are shown in

CR 55151-54. TSARs are concatenated by these generic sequences are shown in

CR 55151-54. TSARs are concatenated by these generic sequences are shown in

CR 55151-54. TSARs are concatenated by these generic sequences are shown in

CR 55151-54. TSARs are concatenated by these generic sequences are shown in

CR 55151-54. TSARs are concatenated by these generic sequences are shown in

CR 55151-54. TSARs are easily of a concatenated by a critical properties of the comprises a linker

CC comprising at least two functional rigidity to the peptides. The TSARs

CC confers some degree of conformational rigidity to the peptides. The TSARs

CC requipator a chemically or biologically active moiety, eg. metal ion,

CR 6611. They can also replace the function of macromolecules, eg.

CM 5011 They are easily characterised and have designed

CM 5011 They are easily characterised and have designed

CM 5011 They are a chemically or biologically characterised and have designed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        070469;
07-APR-1995 (first entry)
Generic DNA sequence to generate a random TSAR peptide library.
TSAR; totally synthetic affinity reagent; synthetic; binding domain;
effector domain; concateneated heterofunctional protein; linker;
direct; rapid; detection; screening; treatment; generic; ss.
Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         activity allowing direct and rapid detection in a screening process. Sequence 114 BP; 0 A; 2 C; 2 G; 2 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3 bandandandandandtgcandandandandandandandandandandandangan 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2490 CTTCCTACGCTTCATGTGCCACGCCGTGCGCATCAGGGGCAAGTCCTACGTCCAGTG
                                                                                             ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ø
effector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                             can pe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /*tag= a
/note= "this sequence represents 'z'; Z can be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2550 CCAGGGGATCCCGCAGGCTCCATCCTCCACGCTGCTCTGCAGCCTGTGC 2601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 12; Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     73; Indels
                                                                                            /note= "this sequence represents 'z'; z sequence of 6, 9 or 12 nucleotides (see
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pred. No. 7.23e-09; 33; Mismatches 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                              Location/Qualifiers
                                                                             /*tag= a
/note= "this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q70469 standard; DNA; 114 BP.
                                                                                                                                                                                                                                  NORTH CAROLINA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5.48;
                                                                                                                          comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                               P-PSDB; R65150 and R65151
                                                                                                                                                                                                    US-176500.
                                                                                                                                                                                      US-013416.
                                                              9.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    90
                                                                                                                                                                                                                     US-189331
                                                                                                                                                                                                                                                  Kay BK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                                                                                                                                                                                                                               WPI; 94-279739,
                                                                                                                                                                                                                                   UYNC-) UNIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                             misc_feature
                                                                                                                                                                                                   30-DEC-1993;
31-JAN-1994;
                                                                                                                                                                                      01-FEB-1993;
                                                                                                                                                                                                                                                   Fowlkes DM,
                                Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FTTESKWEET
```

```
PR 01-FEB-1993; US-19630.

PR 30-DEC-1993; US-19630.

PR 31-JAN-1994; US-19630.

PR 31-JAN-1994; US-19630.

PR 4 (UTC-) UNIV NORTH CAROLINA.

FOWIRSD DM, Ray BK;

WPI: 94-279739/34.

PT Identifying proteins or peptide(s) which bind a ligand - by

Romprising a recombinant vector library expressing fusion proteins

PT screening a recombinant vector library expressing fusion proteins

PT comprising a binding domain and an effector domain

PT screening a recombinant vector library expressing fusion proteins

PT screening a recombinant vector library expressing fusion proteins

PT comprising a binding domain and an effector domain

CC 70469 is a generic DNA sequence used to generate random TSAR peptide

CC 7076/NNB5/Z(NNB)/ZUCG)(NNB)/4 (TGC)Y. X and Y are fitanking restriction

CC 51cs (X is not the same as Y) that are not specified further. This sequence generates peptides that are cloverleaf in structure. Other generated by these generic sequences are shown in 70465-68. Other specific peptides

CC 51cs (X is not the same as Y) that are not specific pertides

CC 51cs (X is not the same as Y) that are cloverleaf in structure. Other generated by these generic sequences are shown in 70565-68. Other specific pertides

CC 51cs (INB)/A 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2567 GCTCCATCCTCTCCACGCTGCTCTGCAGCCTGTGCTACGGCGACATGGAGAAAGCTGT 2626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Generic DNA sequence to generate a random TSAR petide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2 gennbanbanbanbanbanbanbanbanbanbtgennbanbanbanbanbanbanann 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   formation or in vivo antibody production. The TSARs are easily characterised and have designed activity allowing direct and rapid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ๙
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             þe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2627 TIGCGGGGAITCGGCGGGACGGCTGCTCCTGCGTTTGGTGGATGATTTCT 2677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 62 nbanbtgcanbanbanbanbanbanbanbanbanbanbanbanbanbt 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 37; DB 12; Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. 2.78e-08;
32; Mismatches 72; Indels
sequence of 6,9 or 12 nucleotides (see
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        detection in a screening process.
Sequence 114 BP; 0 A; 4 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JT 7
Q70467 standard; DNA; 114 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4.1%;
larity 6.3%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /*tag= a
                                                                                                                                                                                                   US-013416.
US-176500.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-013416.
US-176500.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            U00977.
                                                                                                                                                             U00977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity
Matches 7; Conser
```

```
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Terrifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins or comprising a binding domain and an effector domain busclosure; Page 35: 255pp; English.

Disclosure: Page 35: 255pp; English.

O70467 is a generic DNA sequence used to generate random TSAR (Totally Synthetic Affinity Reagents) peptides. This generic formula can also be represented as follows: X(NNB)16(FCC)(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(NNB)12(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The TSARs are easily characterised and have designed activity allowing direct and rapid detection in a screening process.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2442 CGAGCAGAGCTCCTCCTGAATGAGGCCAGCAGTGGCCTCTTCGACGTTCTACGCTT 2501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Generic DNA sequence to generate a random TSAR petide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss. Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Identifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2502 CATGTGCCACCCCGCGCGCGCATCAGGGGCAAGTCCTACGTCCCAGTGCCAG 2553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             can pe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pred. No. 1.06e-07;
34; Mismatches 74; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /*tag= a /note= "this sequence represents 'Z'; Z sequence of 6, 9 or 12 nucleotides (see comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               defection in a screening process P; 0 A; 2 C; 2 G; 2 T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18-AUG-1994.

01-FEB-1994; U00977.

01-FEB-1993; US-013416.

30-DEC-1993; US-176500.

31-JAN-1994; US-189331.

(UYNC-) UNIV NORTH CAROLINA.

FOWIKES DM. KAY BK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   070468 standard; DNA; 114 BP. 070468; 05-APR-1995 (first entry)
31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
Fowlkes DM, Kay BK;
WPI; 94-279739/34.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity 3.6%;
4; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            . 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity
Matches 4; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 94-279739/34.
                                                                    P-PSDB; R65153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               P-PSDB; R65154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO9418318-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
   ò
```

```
PT comprising a binding domain and an effector domain

Disclosure, Page 35; 255pp; English.

CG 70468 is a generic DNA sequence used to generate random TSAR (Totally
CSYNthetic Affinity Reagents) peptides.This generic formula can also be

CC and Y are flanking restriction sites (X is not the same as Y) that are

CC and Y are flanking restriction sites (X is not the same as Y) that are

CC ther specified further. Other generic sequences are shown in Q70466.68.

CC Other specified further concatenated heterofunctional proteins or peptides,

CC Comprising at least two functional regions - a binding domain with

CC Affinity for a ligand and a second effector peptide portion that is

CC comprising at least two functional regions - a binding domain with

CC femically or biologically active. They may further comprise a linker

CC femically or biologically active. They may further comprise a linker

CC femically or biologically active are also designed so

that the expressed peptide contains 2 or 4 cysteine residues positioned

CC fin, or flanking, the unpredicted or variant residues. These residues

CC offer some degree of conformational rigidity to the peptides. The TSARs

CC confer some degree of conformational rigidity to the peptides.

CC addiver a chemically or biologically active molety, eq.

CC addiver a chemically or biologically active molety, eq.

CC addiver a chemically or biologically active molety, eq.

CC addiver and also replace the function of macromolecules, eq.

CC addivers methods of hybridoma formation or in vivo antibody

CC for complex methods of hybridoma formation or in vivo antibody

CC allowing direct and rapid detection in a screening process.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  identifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins comprising a bluding domain and an effector domain bisclosure; Paqe 35; 255pp; English.

Q70466 is a generic DNA sequence used to generate random TSAR (Totally Synthetic Affinity Reagents) peptides.This generic formula can also be represented as follows:X(NNB)1(TGC)(NNB)10(TGC)2(NNB)4Z(NNB)8(TGC)(NNB)9Y. X and Y are flanking restriction sites (X is not the same as Y) that are not specified further. Other generic sequences are shown in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2055 CGTGCTCAACTACGAGCGGGCGCGCCCCCGGCCTCCTGGGCGCCTCTGTGCTGGGCCT 2114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Generic DNA sequence to generate a random TSAR-9 petide library. TSAR: totally synthetic affinity reagent; synthetic; binding domain; effector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2115 GGACGATATCCACAGGCCTGGCGACCTTCGTGCTGTGTGCGGGCCCAG 2166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 63 banbanbanbanbanbtgcanbanbanbanbanbanbanbanbanbanb 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      can
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 36; DB 12; Length 114;
Pred. No. 1.06e-07;
34; Mismatches 74; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note= "this sequence represents 'Z'; Z sequence of 6, 9 or 12 nucleotides (see
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2
G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-FEB-1993; US-013416.
30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
UVNC-) UNIV NORTH CAROLINA.
FOWIKES DM. KAY BK;
WPI; 94-279739/34.
P-PSDB; R65152.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q70466 standard; DNA; 114 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4.0%;
Similarity 3.6%;
4; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /*tag= a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 4; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-FEB-1994; U00977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q70466;
05-APR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
```

```
CC 070466-68. Other specific peptides generated by these generic sequences are shown in R65181-54. TSARs are concatenated heterofunctional proteins or shown in R65181-54. TSARs are concatenated heterofunctional proteins or peptides, comprising at least two functional regions - a binding domain with affinity for a ligand and a second effector peptide portion that is chemically or biologically active. They may further comprise a clinker peptide between the 2 domains. The obligonucleotides are also designed so that the expressed peptide contains 2 or 4 cysteine residues confers some degree of conformational rigidity to the peptides. These conformational rigidity to the peptides. The TSARs or compans. Comprising a TSAR binding domain can be used in vivo to deliver a chemically or biologically active moiety, eg. metal contractione, peptide, toxin or enzyme, to the specific target or on the cell. They can also replace the function of macromolecules, eg. complex methods of hybridoma formation or in vivo antibody production. Cr he TSARs are easily characterised and have designed activity allowing direct and rapid detection in a screening process.

CD THE TSARS are easily characterised and have designed activity allowing confired and rapid detection in a screening process.

CD THE TSARS are easily characterised and have designed activity allowing confired and rapid detection in a screening process.
```

```
2567 GCTCCATCCTCCACGCTGCTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGT 2626
                                                                       5 genabanbanbanbanbanbanbanbanbtgetgenabanbanbanbananan 64
                                      Gaps
                                      ö
                                                                                                                                                                       2627 TIGCGGGGATTCGGCGGGCGCTGCTCCTGCGTTTGGTGGATGATTTC 2676
                                                                                                                                              65 nbnnbnnbnnbnnbnnbtgcnnbnnbnnbnnbnnbnnbnnbnnbnnb 114
Length 114;
                                    71; Indels
Score 36; DB 12; 1 Pred. No. 1.06e-07;
               Pred. No. 1.06e-31; Mismatches
                                    Conservative
         Best Local Similarity
Matches 8; Conser
Query Match
                                                                       셤
                                                                                                                                              g
                                                                                                                                                                                   ö
                                                                                                             à
```

```
identifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins comprising a blinding domain and an effector domain bisclosure; Page 35; 255pp; English and an effector domain bisclosure; Page 35; 255pp; English English and an effector domain TSAR (Totally Q70467 is a generic DNA sequence used to generate random TSAR (Totally Sylfainty Reagents) peptides. This generic formula can also be represented as follows: X(NNB)16(TGC)(NNB)18. X and Y are flanking restriction sites (X is not the same as Y) that are not specific peptides generated by these generic sequences are shown in Q70466-68. Other specific peptides generated by these generic sequences are shown in R65151-54. TSARs are concatenated heterofunctional proteins or peptides, comprising at least two functional regions - a binding domain with a finity for a ligand and a second effector peptide portion that is affinity for a ligand and a second effector peptide portion that is peptide between the 2 domains.They may further comprise a linker peptide between the 2 domains.They may further comprise a linker peptide between the 2 domains.They are 4 cysteine residues positioned
                                                                                         Generic DNA sequence to generate a random TSAR petide library. TSAR: totally synthetic affinity reagent; synthetic; binding domain; effector domain; concatenated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                ď
                                                                                                                                                                                                                          55..60
/*tag= a
//ote="this sequence represents '2'; 2 can be sequence of 6, 9 or 12 nucleotides (see comments)"
                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                   01-FEB-1994; U00977
01-FEB-1993; US-013416.
30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
(UYNC:) UNIV NORTH CAROLINA.
FOWLKes DM, RAY BK;
WPI; 94-279799/34
                     Q70467 standard; DNA; 114 BP. Q70467;
                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  R65153
                                                                                                                                                                                                                            misc_feature
                                                                 05-APR-1995
Generic DNA
                                                                                                                                                                                                                                                                                                                                           WO9418318-A
                                                                                                                                                                                Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P-PSDB;
RESULT
```

```
PER 1935; UC-176500.

PR 30-PEE-1993; UC-176500.

PR 30-DEC-1993; UC-176500.

PR 31-JAN 1994; UC-189331.

PR 31-JAN 1994; UC-189331.

PR 31-JAN 1994; UC-189331.

PR 31-JAN 1994; UC-189331.

PA (UYNC-) UNIV NORTH CAROLINA.

PA (UXNC-) UNIV NORTH CAROLINA.

PA (UNIV) IS a generic DAN Sequence used to generate random TSAR (Totally CAROLINA).

CA (CAC) Z(NNB) Z. And Y are flanking restriction sites (X is not the same CACOLINA).

CA (CAC) Z(NNB) Z. And Y are flanking restriction sites (X is not the same CACOLINA).

CA Y) that are not specified further. The peptides generated by this and CACOLINA.

CA Y) that are not specified further. The peptides generated by this and CACOLINA.

CA Y) that are not specified further. The peptides generated by this and CACOLINA.

CA Y) that are not specified further. The peptides generated by this and CACOLINA.

CA Y) that are not specified further. The peptides second heterofunctional proteins of peptides chemically or a ligand and a second CACOLINA.

CA (UNIV) TA (UNIV) TA
in, or flanking, the unpredicted or variant residues. These residues confer some degree of conformational rigidity to the peptides. The TSARs or compans. comprising a TSAR binding domain can be used in vivo to deliver a chemically or biologically active moiety, eg. metal ion, radioisotope, peptide, toxin or enzyme, to the specific target or on the coll. They can also replace the function of macromolecules, eg. monoclonal or polyclonal antibodies and therefore circumvent the need for complex methods of hybridoma formation or in vivo antibody production. The TSARs are easily characterised and have designed activity allowing direct and rapid detection in a screening process.
                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                               2610 GTCGCCGTAGCACAGGCTGCAGAGCAGCGTGGAGGGATGGAGCCCTGCGGGATCCCCTG 2551
                                                                                                                                                                                                                                                                                                                                                                                                                Generic DNA sequence to generate a random TSAR peptide library.
TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concatenated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                               Length 114;
                                                                                                                                                                                                                                                                                                                                       Pred. No. 1.06e-07;
33; Mismatches 70; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2550 GCACTGGACGTAGGACTTGCCCTGATGCGCACGGCGTGGTGGCAC 2505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /*tag= a
/note= "encoded by Z (see comments)"
                                                                                                                                                                                                                                                                                                               DB 12;
                                                                                                                                                                                                                                                                                                               Score 36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                            Query Match 4.0%;
Best Local Similarity 2.8%;
Matches 3; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            J. 11
Q70470 standard; DNA; 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    55..60
/*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO9418318-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18-AUG-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             970470;
          8888888888888
                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ე
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
```

```
This generic formula of peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins comprising a binding domain and an effector domain

Disclosure; Page 35; 255pp; English.

O70469 is a generic DNA sequence used to generate random TSAR peptide

CTGC)(NNB)GCNNB)Z(TGC)(NNB)14(TGC)T. X and Y are flanking restriction

Sites (X is not the same as Y) that are not specified further. This

Sequence generates peptides that are cloverleaf in structure. Other

Sequence generates peptides that are cloverleaf in structure. Other

Generated by these generic sequences are shown in R6515-54. TSARs are

concatenated heterofunctional proteins or peptides, comprising at least

two functional regions - a binding domain with affinity for a ligand and

a second effector peptide portion that is chemically or biologically

active. They may further comprise a linker peptide between the 2 domains.

The oligonucleotides are also designed so that the expressed peptide

conformational rigidity to the peptides. The TSARs or compensing

the conformational rigidity to the peptides. The TSARs or compension

conformational rigidity to the peptides. The TSARs or compension

conformational rigidity to the peptides. The TSARs or compension

conformational rigidity to the peptides. The TSARs or compension
                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           biologically active moiety, eg. metal ion, radioisocope, peptide, toxin or enzyme, to the specific target or on the cell. They can also replace the function of macromolecules, eg. monoclonal or polyclonal antibodies and therefore circumvent the need for complex methods of hybridoma formation or in vivo antibody production. The TSARs are easily
                                                                                                        2625 CAGCTTGTTCTCCATGTCGCCGTAGCACAGCTGCAGACCAGCGTGGAGCC 2566
                                                                             Generic DNA sequence to generate a random TSAR peptide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  characterised and have designed activity allowing direct and rapid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ๗
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  55..60 /
/*tag= a // hote= hote represents '2'; Z can be sequence of 6,9 or 12 nucleotides (see
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 35; DB 12; Length 114;
Pred. No. 4.00e-07;
32; Mismatches 72; Indels
    Length 114;
Score 36; DB 12; Length 114
Pred. No. 1.06e-07;
30; Mismatches 66; Indels
                                                                                                                                                                                                     2565 CTGCGGGATCCCCTGGCACTGGACGTAGGACTTGCCCCTGATGC 2522
                                                                                                                                                               4 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4
C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         detection in a screening process.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-FEB-
30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
                                                                                                                                                                                                                                                                 7 12
Q70469 standard; DNA; 114 BP.
Q70469;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4.68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    comments)"
                                                                                                                                                                                                                                                                                                                          07-APR-1995 (first entry)
                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-013416.
US-176500.
US-189331.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               77600U
  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-FEB-1994;
01-FEB-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                             Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                         Matches
                                                                                                                                                                                                                                                                 RESULT
                                                                                                                       S
                                                                                                                                                             g
                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                           g
```

```
Tersule rasorb rasorb.

Tersule rasorb rasorb.

Tersule r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2499 CITCAIGIGCCACCACGCGIGCGCATCAGGGGCAAGICCIACGICCAGGGCAGI 2558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        070472;
10-APR-1995 (first entry)
Generic DNA sequence to generate a random TSAR peptide library.
TSAR; totally synthetic affinity reagent; synthetic; binding domain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3 bnnbnnbnnbcacnnbnnbnnbnnbcacnnbnnbnnbnnbnnbnnbnnbnnbnnbnnnnnn 62
                                                                                                                                                                                                                       Generic DNA sequence to generate a random TSAR peptide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concatenated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SARs are easily characterised and have designed direct and rapid detection in a screening process.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ó
                              Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No. 1.49e-vo,
30; Mismatches 68; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2559 CCCGCAGGGCTCCATCCTCTCCACGCTGCTCTGCAGCCTGTGCTAC 2604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       63 bnnbnnbnnbnnbcacnnbnnbnnbnnbnnbnnbnnbcac 108
                                                                                                                                                                                                                                                                                                                                                                                                 /*tag= a
/note= "encoded by Z (see comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 12; I
1.49e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 34;
                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  production. The TSARS are easily activity allowing direct and rapi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-FEB-1993; US-013416.
30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
FOWLKES DM, RAV RK.
                                                                                                                           7 13
Q70470 standard; DNA; 114 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JT 14
Q70472 standard; DNA; 114 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3.8%;
Similarity 7.5%;
8; Conservative
                                                                                                                                                                                                10-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               T000D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Fowlkes DM, Kay Bi
WPI; 94-279739/34.
P-PSDB; R58378.
                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO9418318-A
                                                                                                                                                                                                                                                                                                                         Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                         970470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                              S
                                                                                                                                               음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ME GAD
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
```

2616 CTCCATGTCGCCGTAGCACAGGCTGCAGAGCAGCGTGGAGAGGATGGAGCCCTGCGGGGAT 2557

Сp

a

3 canbanbanbanbanbanbanbanbanbanbtgcanbanbanbanbanbanbanbanan 62

```
ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                    PT FORDIS KASAS.

PORTIGIONE TO PEPTIDE(S) which bind a ligand - by screening a recombinant vector library expressing fusion proteins comparising a binding domain and an effector domain

CONDISIONATE. Babiding domain and an effector domain

Disclosure: Page 36; 255pp; English.

O70472 is a generic DNA sequence used to generate random TSAR (Totally Synthetic Affinity Reagents) peptides. This generic formula can also be represented as follows: X(NNB) (CAC)(NNB) (CAC) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2088 CCTCCTGGGCGCCTCTGTGCTGGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGT 2147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3 bcacnnbnnbnnbnnbnnbnnbnnbnnbnnbnnbnnbcacnnbcacnnbnnbnnnnnnn 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Generic DNA sequence to generate a random TSAR petide library. TSAR: totally synthetic affinity reagent; synthetic; binding domain; effector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /*tag= a
/note= "this sequence represents '2'; Z can be a
sequence of 6, 9 or 12 nucleotides (see
comments)"
effector domain; concatenated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2148 GCTGCGTGTGCGGGCCCAGGACCCGCCGCCTGAGCTTTTGTCAAGGTG 2199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          63 banbanbanbanbanbcacanbanbanbanbanbcaccacanbanbanb 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 34; DB 12; Length 114
Pred. No. 1.49e-06;
30; Mismatches 71; Indels
                                                                                              /*tag= a
/note= "encoded by 2"
                                                        Location/Qualifiers
55..60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q70468 standard; DNA; 114 BP. Q70468; 05-APR-1995 (first entry)
                                                                                                                                                                                                                                31-JAN-1994; US-189331.
(UVNC) UNIV NORTH CAROLINA.
FOWNKES DM, KAY BK;
WPI; 94-279739/34.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3.8%;
llarity 9.8%;
Conservative
                                                                                                                                                                                          US-013416.
US-176500.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                55..60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18-AUG-1994.
01-FEB-1994; U00977.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                              P-PSDB; R58383
                                                                                                                                                                                          01-FEB-1993;
30-DEC-1993;
                                                                                                                                                                            01-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO9418318-A
                                          Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
```

```
Treaturing a recombinant vector library expressing fusion proteins processing a recombinant vector library expressing fusion proteins promprising a binding domain and an effector domain proteins processing fusion proteins processing a bisclosure; Page 35; 2578p; Sngilsh.

C 070468 is a generic DNA sequence used to generate random TSAR (Totally CTC (NAB) 10704 (NAB) 10705 (NAB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2619 GTTCTCCATGTCGCCGTAGCACAGGCTGCAGGGGTGGAGGATGGAGCCCTGCGG 2560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3 banbanbanbanbanbanbanbanbanbanbtgcanbanbanbanbanbanbannanan 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2559 GAICCCCIGGCACTGGACGIAGGACTIGCCCCTGAIGCGCACGGCGIGGIGG 2508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  63 banbanbanbanbanbanbtgcanbanbanbanbanbanbanbanbanb 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 34; DB 12; Length 114;
Pred. No. 1.49e-06;
34; Mismatches 75; Indels
                                                                                                                                                                                                                                                                                                                                                     Identifying proteins or peptide(s) which bind a ligand screening a recombinant vector library expressing fusion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Search completed: Thu Dec 24 18:37:53 1998 Job time: 419 secs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.8%;
larity 2.7%;
Conservative
01-FEB-1993; US-013416.
30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
                                                                                                                                                                                                 Kay BK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 3; Conser
                                                                                                                                                                                                            Fowlkes DM, Kay B
WPI; 94-279739/34.
                                                                                                                                                                                                                                                                                                             R65154
                                                                                                                                                                                                                                                                                                       P-PSDB;
```

THIS PAGE BLANK (USPTO)

0.00e+00 3.00e+00 1.20e-23 1.20e-23 1.82e-169 2.84e-143 2.84e-143 2.84e-143 3.84e-143

756 - 41 756 - 41 756 - 41 746 - 32 746 - 32 746 - 32 816 - 30 816 - 30 816 - 30 776 - 29 776 - 29 776 - 29

```
Sequence 13, Application US/08951733
GENERAL INFORMATION:
APPLICANT: Harrington, Lea A.
APPLICANT: Robinson, Murray O.
TITLE OF INVENTION: NOVEL GENES ENCODING TELOMERASE PROTEINS
NUMBER OF SEQUENCES: 44
CORRESPONDENCE ADDRESS:
                     sequence 1, Applicationsequence 54, Applicationsequence 62, Applicationsequence 62, Applicationsequence 62, Applicationsequence 62, Applicationsequence 62, Applicationsequence 63, Applicationsequence 64, Applicationsequenc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER FEACHMENT FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
COMPUTER: PAtentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/951,733
FILING DATE: 16-OCT-1997
CLASSIFICATION: 435
PRIOR APPLICATION UNBER: US 08/873,039
FILING DATE: 11-JUN-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/873,189
FILING DATE: 15-NOV-1996
ATTORNEY/AGENT INFORMATION:
NAME: OLGSKI, NANCY A.
NAME: OLGSKI, NANCY A.
NAME: OLGSKI, NANCY A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              T 1
US-08-951-733-13 STANDARD; DNA; UNC; 2848
US-08-846-
US-09-042:..
US-08-911-
US-08-911-
US-08-912-
US-08-844-
US-08-851-
US-08-851-
US-08-851-
US-08-851-
US-08-851-
US-08-854-
US-08-846-
US-08-911-
US-08-911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REGISTRATION NUMBER: 34,688
REFERENCE/DOCKET NUMBER: A-433B
TELECOMMUNICATION INFORMATION:
TELEPHONE: (805) 447-6504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE: Amgen Inc.
STREET: One Amgen Center Drive
CITY: Thousand Oaks
STATE: CA
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
12171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY: USA
ZIP: 91320-1789
RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .....AGGCCCTGGGTGGCACGGCT 2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.00e+00
                                                                                                                                                                                                                              (MI)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MasPar time 1550.93 Seconds 622.512 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1:P9 2:U6000 3:U6001 4:U6002 5:U6003 6:U6004 7:U6005 8:U6006 9:U6007 10:U6000 11:U7 12:U80 13:U81 14:U82 15:U83 16:U84A 17:U84B 18:U85 19:U86 20:U87 21:U88 23:U90A 24:U90B 25:U91 26:NEWP 27:NEWU6 28:NEWU8
                                                                                                                                                                                                                                                                                                                                                                                                                              n.a. - n.a. database search, using Smith-Waterman algorithm with gap extension penalties as well as gap opening penalties
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 13, Applicati
Sequence 19, Applicati
Sequence 224, Applicatio
Sequence 224, Applicatio
Sequence 35, Applicatio
Sequence 35, Applicatio
Sequence 1, Applicatio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Applicat
Applicat
                                                                                                                                                                                                                                                                                                                           Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 173, Applicat
Sequence 173, Applicat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        36, Applicati
18, Applicati
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Applicatio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Applicatio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mean 9.874; Variance 3.555; scale 2.777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             οţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             >US-08-951-733-13
(1920-2820) from US08951733.seq (2
901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1665728 seqs, 535777091 bases x 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1920 GTCCAGACTCCGCTTCATCC.
CAGGTCTGAGGCGAAGTAGG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Dec 24 18:38:12 1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TABLE default
Gap open 30; Gap extend 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Minimum Match 0%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-951-
US-09-052-
US-08-912-
US-08-911-
US-08-911-
US-08-911-
US-08-851-
US-08-851-
US-08-851-
US-08-851-
US-08-911-
US-08-912-
US-08-911-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Dbase 0; Query 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              not generated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2848
37798
4015
4015
7029
4023
7029
2176
3345
33855
2171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Description:
Perfect Score:
N.A. Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tabular output
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Statistics:
                                                                                                                                                                                                                                                                                                                                                                                                                                      MPsrch_nna
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Database:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Nmatch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   264398765432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Run
```

```
nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                          ZIP: 91320-1789
                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRANDEDNESS:
TOPOLOGY: lir
                                                                                                                                                                                                                                   COUNTRY:
              2820 T 2820
                                 2820 T 2820
                                                                                      XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
               셤
                                  ð
                                                                          δ
                                                                                                                                               1920 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTA 1979
                                                                                                                                                                                                                                                                            2159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1980 CGTCGTGGGAGCCAGAACGTTCCGCAGAGAAAAGAGGGCCGAGCGTCTCACCTCGAGGGT 2039
                                                                                                                                                                                                                                           2220 CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAACCCCAGAACCC
                                                                                                                                                                                                                                                                                                                                                                                                   GTACTGCGTGCGTCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCCACGTCCGCAAGGC 2339
                                                                                                                                                                                                                                                                                                                                                                                                                                          CTTCAAGAGCCACGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGC 2399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2400 TCACCTGCAGGAGACCAGCCGCTGAGGGATGCCGTCATCGAGCAGAGCTCCTCCCT 2459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2460 GAATGAGGCCAGCAGCAGTGGCCTCTTCGACGTTCCTACGCTTCATGTGCCCACCACCACGCGT 2519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2520 GCGCATCAGGGGCAAGTCCTACGTCCAGTGCCAGGGATCCCGCAGGGCTCCATCCTCC 2579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2640 GCGGGACGGCTGCTCCTGCGTTTGGTGATTTCTTGTTGGTGACACCTCACCTCAC 2699
                                                                                                                                                                    1920 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTA 1979
                                                                                                                                                                                       CGTCGTGGGAGCCAGAACGTTCCGCAGAGAAAGAGGGCCGAGCGTCTCACCTCGAGGGT 2039
                                                                                                                                                                                                                                                                                                                                                           CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCCAGAACAC 2279
                                                                                                                                                                                                                                                                                                                                                                                                                                                              CITCAAGAGCCACGICICITACCTIGACAGACCICCAGCCGIACAIGCGACAGITCGIGGC 2399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGGGACGGGCTGCTCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCAC 2699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCACGCGAAAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGT 2759
                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                            GCCCCAGGACCCGCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CACGCTGCTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCG
                                                                                                                                                                                                                                                                          CTCTGTGCTGGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCACCTGCAGGAGCAGCCCGCTGAGGGATGCCGTCGTCGAGCAGGAGCTCCTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGCATCAGGGGCAAGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCTC
                                                                                                                            ö
                                                                                                      Score 901; DB 22; Length 2848;
Pred. No. 0.00e+00;
0; Mismatches 0; Indels 0
TELEFAX: (805) 499-8011
INFORMATION FOR SEQ ID NO: 13:
SEQUENCE CHARACTERISTICS:
LENGTH: 2848 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: CDNA
SEQUENCE 2848 BP; 437 A; 978 C; 945 G; 488 T; 0 OTHER.
                                                                                                      Match 100.0%;
Local Similarity 100.0%;
hes 901; Conservative
                                                                                                       Query Match
                                                                                                                           Matches
                                                                                                                                                                                                                                2040
                                                                                                                                                                                                                                                                                              2100
                                                                                                                                                                                                                                                                                                                   2160
                                                                                                                                                                                                                                                                                                                                      2160
                                                                                                                                                                                                                                                                                                                                                          2220
                                                                                                                                                                                                                                                                                                                                                                                                                     2280
                                                                                                                                                                                                                                                                                                                                                                                                                                           2340
                                                                                                                                                                                                                                                                                                                                                                                                                                                              2340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2700
                                                                                                                                                                                                                                                                          2100
                                                                                                                                                                                                                                                                                                                                                                                                   2280
                                                                                                                                                                                        1980
                                                                                                                                                ద
                                                                                                                                                                    ò
                                                                                                                                                                                       g
                                                                                                                                                                                                            ò
                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                   . සු
                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
   88888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1921 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTA 1980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1920 GTCCAGACTCCGCTTCATCCCCAAGCCTGAGGCTGCGGCCGATTGTGAACATGGACTA 1979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTCTGTGCTGGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1981 GTCGTGGGAGCCAGAACGTTCCGCAGAGAAAAGAGGCCCGAGCGTCTCACCTCGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1980 CGTCGTGGGAGCCAGAACGTTCCGCAGAGAAAAGAGGGCCCGAGCGTCTCACCTCGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAAGGCACTGTTCAGCGTGCTCAACTACGAGCGGGCGGGGGCGCCCCGGGCTCCTGGGCGC
                                                                                                                                                                               APPLICANT: Harrington, Lea A.
APPLICANT: Robinson, Murray O.
TITLE OF INVENTION: NOVEL GENES ENCODING TELOMERASE PROTEINS
NUMBER OF SEQUENCES: 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 3798;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: Patentin Release #1.0, version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/951,733 FILING DATE: 16-OCT-1997 CLASSIFICATION: 45-1997 CLASSIFICATION: 45-1997 CLASSIFICATION: 45-1997 PRIOR APPLICATION NUMBER: US 08/873,039 FILING DATA: APPLICATION NUMBER: US 08/751,189 FILING DATA: APPLICATION NUMBER: US 08/751,189 FILING DATA: APPLICATION NUMBER: US 08/751,189 FILING DATE: 15-NOV-1996 ATTORNEY/AGENT INFORMATION: NAME: OLESKI, NBNCY A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE: CDNA
SEQUENCE 3798 BP; 613 A; 1310 C; 1213 G; 662 T; 0 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 901; DB 22;
Pred. No. 0.00e+00;
0; Mismatches 0
                         BP
T 2
US-08-951-733-19 STANDARD; DNA; UNC; 3798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A-433B
                                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
ADDRESSEE: Amgen Inc.
STREET: One Amgen Center Drive
CITY: Thousand Oaks
STATE: CA
                                                                                                    Sequence 19, Application US/08951733
Sequence 19, Application US/08951733
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Oleski, Nancy A. REGISTRATION NUMBER: 34,688
REFERENCE/DOCKET NUMBER: A-4
TELECOMMUNICATION INFORMATION:
TELEPHONE: (805) 447-6504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX: (805) 499-8011
INFORMATION FOR SEQ ID NO: 19:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 3798 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 100.0%;
Best Local Similarity 100.0%;
Matches 901; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM: MEDIUM TYPE: Floppy of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          single
```

셤 ö 용 ò a ö g ò a 6 셤 à 윤 ò ద ò 셤 ö 8 ð 셤 ò

ð

```
1909 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTA 1968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: CDS
LOCATION: 56.1454
OTHER INFORMATION: /product= "human telomerase reverse OTHER INFORMATION: transcriptase (htm?)"
SEQUENCE 4015 BP; 663 A; 1363 C; 1275 G; 714 T; 0 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 901; DB 24; Length 4015;
Pred. No. 0.00e+00;
0; Mismatches 0; Indels 0
            COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
COMPUTER: IBM PC COMPACEDS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CUSRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/052,919
FILING DATE: 31.AMR-1998
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 10-OCT 1996
PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 12-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 14-ANG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/911,312
FILING DATE: 14-ANG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/911,312
APPLICATION NUMBER: US 08/911,312
APPLICATION NUMBER: US 08/912,951
BRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/912,951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE/DOCKET NUMBER: 015389-003600US TELECOMMUNICATION INFORMATION: TELEPHONE: (415) 576-0200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NOMBER: US 08/912/921
PRIOR APPLICATION DATA:
PRIOR APPLICATION DATA:
FILING DATE: 14-AUG-1997
FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/974,549
FILING DATE: 19-NOV-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/974,584
FILING DATE: 19-NOV-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: WO PCT/US97/17618
FILING DATE: 01-OCT-1997
APPLICATION NUMBER: WO PCT/US97/17618
FILING DATE: 01-OCT-1997
APPLICATION NUMBER: WO PCT/US97/17618
FILING DATE: 01-OCT-1997
ATTORNEY AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME: Parent, Annette S. REGISTRATION NUMBER: 42,058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 4015 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 100.0%;
Best Local Similarity 100.0%;
Matches 901; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY: 11
MOLECULE TYPE:
    COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      음
    2459
                                                                                                                                                                                                                                                                                                                                                                                                                                                               2460 GAATGAGGCCAGCAGTGGCCTCTTCGACGCTTCATGCTTCATGTGCCACGCCGT 2519
2100 CTCTGTGCTGGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCTGTGCG 2159
                                                                                                                                                                                                                    2280 GTACTGCGTCGGTCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGC 2339
                                                                                                                                                                                                                                                                                                  2340 CITCAAGAGCCACGICICIACCITGACAGACCICCAGCCGTACATGCGACAGITCGIGGC 2399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Cach, Thomas R.
APPLICANT: Linguer, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Nakamura, Toru
APPLICANT: Nakamura, Toru
APPLICANT: Morin, Gregg B.
APPLICANT: Harley, Calvin B.
APPLICANT: Harley, Calvin B.
APPLICANT: Andrews, William H.
TITLE OF INVENTION: Antisense Compositions for Detecting and
TITLE OF INVENTION: Inhibiting Telomerase Reverse Transcriptase
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2400 TCACCTGCAGGAGACCAGCCGCTGAGGATGCCGTCGTCATCGAGCAGAGCTCCTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2581 CACGCTGCTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2580 CACGCTGCTCTGCAGCCTGTGCTACGCGACATGGAGAACAAGCTGTTTGCGGGGATTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGGGACGGGCTGCTTCGTTGGTGATTTCTTGTTGGTGACACCTCACCTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2640 GCGGGACGGCTCCTGCGTTTGGTGATTTCTTGTTGTGACACCTCACCTCAC
                                                                                                                                                        2220 CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCCAGAACAC
                                                                                                                                                                                                 GTACTGCGTGCGTCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGC
                                                                                                                                                                                                                                                                              2341 CTTCAAGAGCCACGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                        2461 GAATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2521 GCGCATCAGGGCAAGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCACGCGAAAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2700 CCACGCGAAAACCTTCCTCAGGACCCTGGTCTCCCGAGGTGTCCCTGAGTATGGCTGCTGCTGGTGT
                                                                                                                   CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACAC
                                                                                                                                                                                                                                                                                                                                                          2401 TCACCTGCAGGAGCCAGCCCGCTGAGGGATGCCGTCGTCATCGAGCAGAGCTCCTCCCT
                                                                                                                                      ADDRESSEE: Townsend and Townsend and Crew LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         T
US-09-052-919-1 STANDARD; DNA; UNC; 4015 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 1, Application US/09052919 Sequence 1, Application US/09052919 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           San Francisco
California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2821 T 2821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2820 T 2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     XXXXXX
                                                                                                                   2221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2641
                                                                                                                                                                                                 2281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
```

ö

```
2039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1909 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTA 1968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1920 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCCGATGTGAACATGGACTA 1979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1980 CGTCGTGGGAGCCAGAACGTTCCGCAGAGAAAAGAGGCCCGAGCGTCTCACCTCGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1969 CGTCGTGGGAGCCAGAACGTTCCGCAGAGAAAAGAGGGGCCGAGCGTCTCCACCTCGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note= "human telomerase reverse
transcriptase (hTRT) catalytic protein
component"
1363 C; 1275 G; 714 T; 0 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 4015;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Indels
                                                                                                                                                                COMPUTE: FLADABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/854,050
FILING DATE: 09-MAY-1997
CLASSIFICATION 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/851,843
FILING DATE: 06-MAY-1997
CLASSIFICATION: 536
CLASSIFICATION: 536
CLASSIFICATION: 536
CLASSIFICATION: 536
                                                                                                LLP
                     APPLICANT: Morth, Gregg B.
APPLICANT: Morth, Gregg B.
APPLICANT: Harley, Calvin
APPLICANT: Andrews, William H.
TITLE OF INVENTION: Novel Telomerase
NUMBER OF SEQUENCES: 225
CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, 8th Floor
CITY: San Francisco
STATE: California
COUNTRY: United States of America
ZIP: 94111
                                                                                                                                                                                                                                                                                                                                                                                                                 PRICE APPLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996
CLASSIFICATION: 336
ATTORNEY AGENT INFORMATION:
NAME: APPLe, Randolph T.
RECISTATION NUMBER: 36,429
RECISTATION NUMBER: 36,429
REFERENCE/DOCKET NUMBER: 015389-002930US
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECAX: (415) 576-0200
INFORMATION FOR SEQ ID NO: 224:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 901; DB 21;
Pred. No. 0.00e+00;
0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
CLASSIFICATION 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OTHER INFORMATION: /product= "hirt"
OTHER INFORMATION: /note= "human te.
OTHER INFORMATION: transcriptase (h'
             œ.
 Nakamura, Toru
Chapman, Karen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 4015 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity 100.0%;
Matches 901; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OTHER INFORMATION:
SEQUENCE 4015 BP; 663 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: CDS
LOCATION: 56..3454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOLECULE TYPE:
 APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               쉱
 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                         2448
           GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTA 1979
                                                                                                                                           GAAGGCACTGTTCAGCGTGCTCAACTACGAGCGGGCGGGGGCGCCCCCGGCCTCCTGGGCGC
                                                                                                         GTACTGCGTGCGTCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGC
                                                                                                                                                                                                                                                                                                                          CTTCAAGAGCCACGTCTTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGC
                                                                                                                                                                                                                                                                                                                                    CTCTGTGCTGGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCG
                                                                                                                                                                               GCCCCAGGACCCGCCGCCTGTACTTTGTCAAGGTGGATGTGACGGCCCGTACGA
                                                                                                                                                                                                                              CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACAC
                                                                                                                                                                                                                                                                                                                                                                       TCACCTGCAGGAGCCAGCCGCTGAGGGATGCCGTCGTCATCGAGCAGAGCTCCTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGCATCAGGGGCAAGTCCTACGTCCAGGGGATCCCGCAGGGCTCCATCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CACGCTGCTCTGCAGCCTGTGCTACGCGACATGGAGAACAAGCTGTTTGCGGGGATTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGGGACGGCTGCTCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCACGCGAAAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGT
T. 4
US-08-854-050-224 STANDARD; DNA; UNC; 4015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 224, Application US/08854050
Sequence 224, Application US/08854050
GENERAL INFORMATION:
APPLICANT: Cech, Thomas R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cech, Thomas R.
Lingner, Joachim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2809 T 2809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2820 T 2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 XXXXXX
                                                         1980
                                                                                2029
                                                                                                        2040
                                                                                                                                2089
                                                                                                                                                      2100
                                                                                                                                                                              2149
                                                                                                                                                                                                     2160
                                                                                                                                                                                                                             2209
                                                                                                                                                                                                                                                   2220
                                                                                                                                                                                                                                                                                                 2280
                                                                                                                                                                                                                                                                                                                                                2340
                                                                                                                                                                                                                                                                                                                                                                        2389
                                                                                                                                                                                                                                                                                                                                                                                              2400
                                                                                                                                                                                                                                                                                                                                                                                                                       2449
                                                                                                                                                                                                                                                                                                                                                                                                                                              2460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2749
                                    1969
                                                                                                                                                                                                                                                                            2269
                                                                                                                                                                                                                                                                                                                         2329
            1920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                         à
                                                                                                        à
                                                                                                                             윱
                                                                                                                                                  ò
                                                                                                                                                                                                     ò
                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
            ð
                                 ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
```

US-08-951-733-13-03.rnp

g

ò ద ò

ö

g

ö 음 ò 음

ò 셤 ò 요 g ò 셤

ò

a õ g õ g ð g

ð

ò

```
1920 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCCGATTGTGAACATGGACTA 1979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1909 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTA 1968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OTHER INFORMATION: /note= "human telomerase reverse OTHER INFORMATION: transcriptase (hTRT) catalytic protein OTHER INFORMATION: Component" SEQUENCE 4015 BP; 663 A; 1363 C; 1275 G; 714 T; 0 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 4015;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 901; DB 22; Length 401
Pred. No. 0.00e+00;
0; Mismatches 0; Indels
                                                                                                                              MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/912,951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RECISTRATION NUMBER: 36,429
RECISTRATION NUMBER: 015389-002600US
TELECOMONICATION INFORMATION:
TELEPHONE: (415,576-0200
TELEFAX: (415,576-0300
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 4015 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                            1: Two Embarcadero Center, 8th Floor San Francisco California
THERAPEUTIC METHODS 335
                                                                                                                                                                                                                         CLASSIFICATION: 435

PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
CLASSIFICATION UNBER: US 08/851,843
APPLICATION UNBER: US 08/851,843
FILING DATE: 06-MAY-1997
CLASSIFICATION: 435
PRIOR APPLICATION: 435
PRIOR APPLICATION: 435
PRIOR APPLICATION UNBER: US 08/846,017
FILING DATE: 25-APR-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product= "hTRT"
                                                                                                                                                                                             FILING DATE: 14-AUG-1997

ELLING DATE: 14-AUG-1997

LOR ADDITOR 435
                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996
CLASSIFICATION: 435
                                                                                            United States of America
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTORNEY/AGENT INFORMATION:
NAME: Apple, Randolph T.
REGISTRATION NUMBER: 36,4
TITLE OF INVENTION: THERAP NUMBER OF SEQUENCES: 335 CORRESPONDENCE ADDRESS: ADDRESSE: Townsend and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 100.0%;
Best Local Similarity 100.0%;
Matches 901; Conservative
                                                                                                                    COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCATION: 56.3454
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY: linear MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: CDS
                                                                                                      94111
                                                                                           COUNTRY:
                                                   STREET:
CITY: Sa
                                                                               STATE:
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              T: Cech, Thomas R.
T: Lingner, Joachim
T: Nakamura, Toru
T: Chapman, Karen B.
T: Morin, Gregg B.
T: Harley, Calvin
T: Andrews, William H.
II'NVENTION: HUMAN TELOMERASE CATALYTIC SUBUNIT: DIAGNOSTIC AND
                                                                                                                                                                                                                                                                                                                                                                 2459
                                                                                                                                                                                                                                                                                                                                                                                           2508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2748
                                                                                                                                                                         2268
                                                                                                                                                                                                                              2328
                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGCATCAGGGGCAAGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCTC 2568
           2400 TCACCTGCAGGAGACCAGCCCGCTGAGGGATGCCGTCGTCATCGAGCAGGCTCCTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                        CTCTGTGCTGGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCG
                                                                             2160 GGCCCAGGACCCGCCGCCGAGCTGTACTTTGTCAAGGTGGATGAACGGGCGCGTAACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CACGCTGCTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCG
                                                                                                                    GGCCCAGGACCCGCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGA
                                                                                                                                                                                                                          GTACTGCGTGCGTCGGTATGCCGTGGTCCAGAAGGCCGCCCCATGGGCACGTCCGCAAGGC
                                                                                                                                                                                                                                                                                 CTTCAAGAGCCACGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGC
                                                                                                                                                                                                                                                                                                                                     2389 TCACCTGCAGGACCAGCCCGCTGAGGGATGCCGTCGTCATCGAGCAGAGCTCCTCCCT
                                                                                                                                                                                                                                                                                                                                                                                          GAATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7. 5
US-08-912-951-1 STANDARD; DNA; UNC; 4015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1, Application US/08912951
Sequence 1, Application US/08912951
GENERAL INFORMATION:
APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Nakamura, Touch
APPLICANT: Chapman, Karen B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: NAPPLICANT: NAPPLICANT: APPLICANT: ATTLE OF INVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     T 2809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2820 T 2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  XXXXXX
                                                                                                                                                                                                                                                     2280 (
                                                                                                                                                                                                                                                                                                                                                                                                                   2460 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2520 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2700 (
                                                               2089
                                                                                                                                                                                                                                                                                                                                                                                          2449
                                                                                                                                                                                                                                                                                                                                                                                                                                              2509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2580
            2029
                                    2040
                                                                                         2100
                                                                                                                                                                                                                                                                               2329
                                                                                                                                                                                                                                                                                                           2340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2809
                                                                                                                    2149
                                                                                                                                                                                                                            2269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
```

ဖ

```
1920 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCCGATTGTGAACATGGACTA 1979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1912 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTA 1971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CICTGTGCTGGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1972 CGTCGTGGGAGCCAGAACGTTCCGCAGAGAAAAGAGGGCCGAGCGTCTCACCTCGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2100 CTCTGTGCTGGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGCCCAGGACCCGCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTACTGCGTGCGTCGGTATGCCGTGGTCCAGAAGGCCGCCCCATGGGCACGTCCGCAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCAAACCCCAGAACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 4023;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY: linear
SEQUENCE 4023 BP; 668 A; 1363 C; 1277 G; 715 T; 0 OTHER
                                                         COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ch 100.0%; Score 901; DB 23; 1 Similarity 100.0%; Pred. No. 0.00e+00; 901; Conservative 0; Mismatches 0
                                                                                                                                                                                                                                                                                                                                                         WHI97-11p4AM
                                                                                                                                      PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/064,322
FILING DATE: 30-007-1997
APPLICATION DATA:
APPLICATION NUMBER: US 60/055,762
FILING DATE: 14-AuG-1997
APPLICATION NUMBER: US 60/054,549
FILING DATE: 01-AuG-1997
                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/047,151
FILING DATE: 20-MAY-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/038,750
                                                                                           CURRENT APPLICATION DATA:
APPLICATION UNMER: US/09/026,981
FILING DATE: 20-FEB-1998
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                               NAME: Granahan, Patricia
REGISTRATION NUMBER: 32,227
                                                                                                                                                                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER: WH
TELECOMMUNICATION INFORMATION
TELEPHONE: 781-861-6240
TELEFAX: 781-861-9540
                                                Floppy disk
                                                                                                                                                                                                                                                                                                         FILING DATE: 20-FEB-1997 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                           4023 base pairs
                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX: 781-861-9540 INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                      nucleic acid
EDNESS: single
                                    COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS:
                                                 MEDIUM TYPE:
                        02173
   Æ
              COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                             CENGIH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                               2148
                                                                                             2208
                                                                                                                   2219
                                                                                                                                          2268
                                                                                                                                                                2279
                                                                                                                                                                                       2328
                                                                                                                                                                                                              2339
                                                                                                                                                                                                                                     2388
                                                                                                                                                                                                                                                           2399
                                                                                                                                                                                                                                                                                  2448
                                                                                                                                                                                                                                                                                                         2459
                                                                                                                                                                                                                                                                                                                                2508
                                                                                                                                                                                                                                                                                                                                                                             2568
                                                                                                                                                                                                                                                                                                                                                                                                   2579
                                                                                                                                                                                                                                                                                                                                                                                                                          2628
                                                                                                                                                                                                                                                                                                                                                                                                                                                 2639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2819
                        2099
                                            2220 CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCCAGCATCATCAAACCCCAGAACAC
                                                                                                                                                                                                  CACGCTGCTCCACACCTGTGCTACGCCACATGGAGAACAAGCTGTTTGCGGGGATTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2160 GCCCAGGACCCGCCCCGCCTGTACTTTGTCAAGGTGGATGTGACGGCCGCGTACGA
                                                                                                                                        CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACAC
                                                                                                                                                                                                                                                                                            GAATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGT
                                                                                                                                                                                                                                                                                                                                                                            GCGCATCCAGGGGCAAGTCCTACGTCCAGGGGATCCCGCAGGGCTCCATCCTCT
                                                                                                                                                                                                                                                                                                                                                                                       2580 CACGCTGCTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCACGCGAAAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAACTIGCGGAAGACAGIGGIGAACTICCCIGIAGAAGACGAGGCCCTGGGIGGCACGGC
                                                                                            GCCCCAGGACCCGCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGA
                                                                                                                                                                                      GTACTGCGTGCGTCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGC
                                                                                                                                                                                                                                    CTTCAAGAGCCACGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGC
                                                                                                                                                                                                                                                                                 TCACCTGCAGGAGACCAGCCGGCTGAGGGATGCCGTCGTCATCGAGCAGAGCTCCTCCCT
                                                                                                                                                                                                                                                                                                                                          GCGGGACGGCTGCTCCTGCGTTTGGTGATTTCTTGTTGGTGACACCTCACCTCAC
                                                                                                       APPLICANT: Counter, Christopher M.
APPLICANT: Meyerson, Matthew
APPLICANT: Meyerson, Matthew
APPLICANT: Weinberg, Robert A.
ITILE OF INVENTION: Telomerase Catalytic Subunit Gene
NUMBER OF SEQUENCES: 52
CORRESPONDENCE ADDRESS:
ADDRESSEE: Hamilton, Brook, Smith & Reynolds, P.C.
STREET: Lew Militia Drive
CITY: Lexington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-026-981-35 STANDARD; DNA; UNC; 4023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 35, Application US/09026981 Sequence 35, Application US/09026981 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   T 2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2809 T 2809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               XXXXXX
                                                                                           2149
                                                                                                                                        2209
                                                                                                                                                                                       2269
                                                                                                                                                                                                             2280
                                                                                                                                                                                                                                   2329
                                                                                                                                                                                                                                                                                 2389
                                                                                                                                                                                                                                                                                                       2400
                                                                                                                                                                                                                                                                                                                              2449
                                                                                                                                                                                                                                                                                                                                                     2460
                                                                                                                                                                                                                                                                                                                                                                            2509
                                                                                                                                                                                                                                                                                                                                                                                                   2520
                                                                                                                                                                                                                                                                                                                                                                                                                         2569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     요
                        õ
                                              셤
                                                                    å
                                                                                         g
                                                                                                                õ
                                                                                                                                    g
                                                                                                                                                               ö
                                                                                                                                                                                     g
                                                                                                                                                                                                             à
                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
```

ö

Gaps

ö

2091 2099 2151 2219

2159

```
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                           2520 GCGCATCAGGGCAAGTCCTACGTCCAGTGCCAGGGATCCCGCAGGGCTCCATCTC
                                                                                                                                                                                   2580 CACGCTGCTCTGCACCTGTGCTACGCGACATGGACAAGCTGTTTGCGGGGATTCG
                                                                                                                                                                                                                            2760 GAACTIGCGGAAGACAGTGGTGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGC
                                                                                                  2460 GAATGAGGCCAGCAGTGGCCTCTTCGACGCTTCATGTTCCTACGCCTCTTCATGTGCCACCCCGT
                                                                                                                                                                                                                                                                       2700 CCACGCGAAAACCTICCTCAGGACCCTGGGTCCGAGGTGTCCCTGAGTAIGGCIGCGTGGT
       CTTCAAGAGCCACGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGC
                  TCACCTGCAGGAGACCAGCCGCTGAGGATGCCGTCGTCATCGAGCAGAGCTCCTCCCT
                                                                                                                                                                                                                  GCGGGACGGCTCCTCCTCCTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCAC
                                                                   2400 TCACCTGCAGGAGACCAGCCGCTGAGGGATGCCGTCGTCGTCGAGCAGAGCTCCTCCCT
                                                                                                                                 GCGCATCAGGGGCCAAGTCCTACGTCCAGGGCATCCCGCAGGGCTCCATCCTCTC
                                                                                                                                                                         CACGCTGCTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCG
                                                                                                                                                                                                                                                          CCACGCGAAAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGT
                                                                                                                                                                                                                                                                                                    GAACTIGCGGAAGACAGTGGTGAACTICCCTGTAGAAGACGAGGCCCTGGGTGGCACGGC
                                                                                       GAATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Lingner, Joachim
APPLICANT: Nakmura, Toru
APPLICANT: Chapman, Karen B.
APPLICANT: Morin, Gregg B.
APPLICANT: Harley, Calvin B.
APPLICANT: Harley, William
TITLE OF INVENTION: Telomerase Reverse Transcriptase
NUMBER OF SEQUENCES: 170
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET: Two Embarcadero Center, Eighth Floor CITY: San Francisco STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                          BP
                                                                                                                                                                                                                                                                                                                                                                                                       US-08-911-312-1 STANDARD; DNA; UNC; 7029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-OCT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/911,312
FILING DATE: 14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 1, Application US/08911312
Sequence 1, Application US/08911312
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY: USA
ZIP: 94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                               2820 T 2820
                                                                                                                                                                                                                                                                                                                                            2812 T 2812
                                                                                                                                                                                                                                                                                                                                                                                                                    XXXXX
                                                                                       2452
                                                                                                                                2512
                                                                                                                                                                        2572
                                                                                                                                                                                                                  2632
                                                                                                                                                                                                                                     2640
                                                                                                                                                                                                                                                          2692
                                                                                                                                                                                                                                                                                                   2752
                           2340
                                               2392
        2332
                                                                                                                                                                                                                                                                                                                                                                                               RESULT
        셤
                            ò
                                              음
                                                                    ò
                                                                                      셤
                                                                                                           ò
                                                                                                                              셤
                                                                                                                                                    ò
                                                                                                                                                                     셤
                                                                                                                                                                                            ò
                                                                                                                                                                                                               a
                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                           쉽
                                                                                                                                                                                                                                                                                                                                                                à
```

```
2099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2635 GTCCAGACTCCGCTTCATCCCCAAGCCTGAGGGTGCGGCCGATTGTGAACATGGACTA 2694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1920 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGGTTGTGAACATGGACTA 1979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2695 CGTCGTGGGAGCCAGAACGTTCCGCAGAAAAGAGGGCCGAGCGTCTCACCTCGAGGGT 2754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2935 CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2815 CTCTGTGCTGGGCCTGGACGATATCCACAGGGCCTGGGGGCACTTCGTGCTGCTGCGTGTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2100 CTCTGTGCTGGGCCTGGACGATATCCACAGGGCCTGGCGCGCACCTTCGTGCTGCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2875 GGCCCAGGACCGCCGCCGCCTGAGCTTGTCAAGGTGGATGTGACGGGCGCGTACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2160 GGCCCAGGACCCGCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1980 CGTCGTGGGAGCCAGAACGTTCCGCAGAAAAAGAGGCCCGAGCGTCTCACCTCGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2755 GAAGGCACTGTTCAGCGTGCTCAACTACGAGCGGGCGCGGGGCGCCCCGGCCTCCTGGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2040 GAAGGCACTGTTCAGCGTGCTCAACTACGAGCGGGCGCGGCGCCCCGGCCTCCTGGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2220 CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: CDS
LOCATION: 782..4177
OTHER INFORMATION: /Product= "human telomerase reverse OTHER INFORMATION: transcriptase (hTRT)"
OTHER INFORMATION: /Gote= "CDNA contained in plasmid OTHER INFORMATION: pGRN121"
SEQUENCE 7029 BP; 1416 A; 2122 C; 2051 G; 1440 T; 0 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 901; DB 22; Length 7029;
Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       38,440
sr: 015389-002500US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                              APPLICATION NUMBER: US U8/831,843
FILING DATE: 06-MAY-1997
PRICA APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/912,951
FILING DATE: 14-AUG-1997
PRIOR APPLICATION NUMBER: US 08/915,503
FILING DATE: 14-AUG-1997
ATTORNEY,AGENT INFORMATION:
                                           FILING DATE: 18-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
                      APPLICATION NUMBER: US 08/844,419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME: Elnhorn, Gregory P.
REGISTRATION NUMBER: 38,440
REFERENCE/DOCKET NUMBER: 01531
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 7029 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          / Match 100.0%;
Local Similarity 100.0%;
hes 901; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     single
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
```

```
MOLECULE TYPE: CDNA
                                                                                                                                                                                                                         linear
                                                                                                                                                                                                               STRANDEDNESS:
                                                                                                                                                                                                                         TOPOLOGY:
                                                                                                                                                                                                                                                    NAME/KEY:
                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                      g
  ö
                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
         2340 CTTCAAGAGCCACGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGC 2399
                                             2580 CACGCTGCTCTGCAGCCTGTGCTACGCCACATGGAGAACAAGCTGTTTGCGGGGATTCG 2639
                                                                                                                                                                                3474
                                                                                                                                                                                                                                                       3055 CTTCAAGAGCCACGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGC 3114
                                                                                                           GCGCATCAGGGGCAAGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCTC 3294
                                                                                                                                              3295 CACGCIGCTCTGCAGCCIGIGCIACGGCGACAIGGAGAACAAGCIGITIGCGGGGAIICG 3354
                                                                                                                                                                                                                     CCACGCGAAAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGT
                                                                                                                                                                                                                                2700 CCACGCGAAAACCTTCCTCAGGACCCTGGTCCCGAGGTGTCCCTGAGTATGGCTGCGGGGT
                                                                        GAATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGT
                                    TCACCTGCAGGAGCAGCCCGCTGAGGGATGCCGTCGTCGAGCAGCAGCTCCTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/854,050
FILING DATE: 09-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3: Townsend and Townsend and Crew LLP
Two Embarcadero Center, 8th Floor
                                                                                                                                                                                                                                                                                                                                                   BP.
                                                                                                                                                                                                                                                                                                                                        JT 8
US-08-854-050-173 STANDARD; DNA; UNC; 4029
                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Lingner, Joachim
APPLICANT: Chapman, Karen B.
APPLICANT: Chapman, Karen B.
APPLICANT: Harley, Calvin
APPLICANT: Andrews, William H.
APPLICANT: Andrews, William H.
APPLICANT: ANDREWS: 225
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    United States of America
                                                                                                                                                                                                                                                                                                                                                                           173, Application US/08854050 173, Application US/08854050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STREET: Two Embarcad
CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY: United
                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ZIP: 94111
                                                                                                                                                                                                                                                                                           3535 T 3535
                                                                                                                                                                                                                                                                                                              2820 T 2820
                                                                                                                                                                                                                                                                                                                                                                           Sequence J
                                                                                                                                                                                                                                                                                                                                                          XXXXXX
                                                                       3175
                                                                                         2460
                                    3115
                                                      2400
                                                                                                          3235
                                                                                                                                                                                                                      3415
                                                                                                                                                                                                                                                                                                                                         RESULT
g
                                                                      a
                                                                                                                                                                                පු
                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                           g
                                  셤
                                                     ò
                                                                                       ò
                                                                                                        ద
                                                                                                                            ö
                                                                                                                                             셤
                                                                                                                                                               ö
                                                                                                                                                                                                 ò
                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                              ò
```

```
2083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1920 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCCGATGTGAACATGGACTA 1979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1904 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTA 1963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2400 TCACCTGCAGGAGACCAGCCCGCTGAGGGATGCCGTCGTCATCGAGCAGCTCCTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1964 CGTCGTGGGAGCCAGAACGTTCCGCAGAGAAAAAGAGGGCCGAGCGTCTCACCTCGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1980 CGTCGTGGGAGCCAGAACGTTCCGCAGAAAAAAAAAGGCCCGAGCGTCTCACCTCGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2084 CICIGIGCIGGCCIGGACGATAICCACAGGGCCIGGCGCACCIICGIGCIGGGTGIGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2324 CTTCAAGAGCCACGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2384 TCACCTGCAGGANAACAGCCCGCTGAGGGATGCCGTCGTCGTCGAGCAGCAGCTCCTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2264 GTACTGCGTGCGTCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 4029;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OTHER INFORMATION: /note= "preliminary sequence for OTHER INFORMATION: human TRT cDNA insert of OTHER INFORMATION: plasmid porm121" SEQUENCE 4029 BP; 687 A; 1342 C; 1255 G; 720 T; 25 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 898; DB 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99.7%; Score 898; 22 - 99.8%; Pred. No. 0.00e+00; rvative 0; Mismatches 2
                                                                                                                                                                                                                           CLASSIFICATION: 536
ATTORNEY/AGENT INFORMATION:
NAME: Apple, Randuph T.
REGISTRATION NUMBER: 36,429
REFERENCE/DOCKET NUMBER: 015389-002930US
TELECOMMUNICATION INFORMATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
CLASSIFICATION: 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION: 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996
                                                                                                                                                                                                                                                                                                                                                 TELEPHONE: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 173:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH: 4029 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity 99.8%;
nes 899; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCATION: 1..4029
OTHER INFORMATION:
OTHER INFORMATION:
OTHER INFORMATION:
```

```
1904 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTA 1963
                                                                                                                                                                                                                                                                                                                                                                                           1920 GTCCAGACTCCGCTTCATCCCCAAGCCTGAGGGCTGCGGCCGATTGTGAACATGGACTA 1979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2564 CACGCTGCTCTGCAGCCTGTGCTACGCCGACATGGAGAACAAGCTGTTTGCGGGGATTCG 2623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2160 GGCCCAGGACCCGCCGCCGCCTGAACTTTGTCAAGGTGGAGGTGACGGCGCGCGTACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2220 CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCCAGCATCATCAAACCCCAGAACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2400 TCACCTGCAGGAGACCAGCCCGCTGAGGGATGCCGTCGTCATCGAGCAGAGCTCCTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2444 GAATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2504 GCGCATCAGGGGCAAGTCCTACGTCCAGGGCGATCCCGCAGGGCTCCATCCTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                     1964 CGTCGTGGGAGCCAGAACGTTCCGCAGAGAAAAGAGGGCCGAGCGTCTCCACCTCGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                   1980 CGTCGTGGGAGCCAGAACGTTCCGCAGAAAAAAAAAGAGGCCGAGCGTCTCACCTCGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2084 CICIGIGGCCTGGACGATAICCACAGGGCCTGGCGCACCTICGIGCTGCTGTGTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2204 CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCCAGAACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2384 TCACCTGCAGGANAACAGCCCGCTGAGGGATGCCGTCGTCGTCGAGCAGGAGCTCCTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2520 GCGCATCAGGGGCAAGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2144 GGCCCAGGACCCGCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2264 GTACTGCGTGCGTCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2324 CTTCAAGAGCCACGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 4029;
                                                                                                                                                                                                                                         /note= "preliminary sequence for human TRT CDNA insert of plasmid pGRN121"
1342 C: 1255 G; 720 T; 25 OTHER.
                                                                                                                                                                                                                                                                                                           Score 898; DB 21; Length 4C
Pred. No. 0.00e+00;
0; Mismatches 2; Indels
                       NAME: Apple, Randolph T.
REGISTATION NUMBER: 36,429
REFERENCE/DOCKET NUMBER: 015389-002930US
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 173:
SEQUENCE CHARACTERISTICS:
LENGTH: 4029 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
            ATTORNEY/AGENT INFORMATION:
NAME: Apple, Randolph T
                                                                                                                                                                                                                                                                                                           99.7%;
Local Similarity 99.8%;
hes 899; Conservative
                                                                                                                                                                                                                           LOCATION: 1..4029
OTHER INFORMATION: //
OTHER INFORMATION: h
OTHER INFORMATION: p)
SEQUENCE 4029 BP; 687 A; 1:
 CLASSIFICATION: 536
                                                                                                                                                                       TOPOLOGY: linear MOLECULE TYPE: CDNA
                                                                                                                                                                                                                   NAME/KEY:
                                                                                                                                                                                                   FEATURE
                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                     쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
8888888888888888888888888888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                              2743
                                                                                                                                                                                                                                                         2759
                                                              GCGGGACGGGCTGCTCCTGCGTTTGGTGATTTCTTGTTGGTGACACCTCACCTCAC
             GAATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGT
                                                                                                                                                                       GCGGGACGGCTCCTCCTGCTTTGGTGATTTCTTGTTGGTGACACCTCACCTCAC
                                                                                                                                                                                                                              CCACGCGAAAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Townsend and Townsend and Crew LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/851,843
FILING DATE: 06-MAY-1997
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Two Embarcadero Center, 8th Floor
                                                                                                                                                                                                                                                                                                                                                                                                                     BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 173, Application US/08651843
Sequence 173, Application US/08651843
GENERAL INFORMATION:
APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Chapman, Karen B.
APPLICANT: Chapman, Karen B.
APPLICANT: Harley, Calvin
APPLICANT: Harley, Calvin
APPLICANT: Andrews, William H.
TITLE OF INVENTION: Novel Telomerase
NUMBER OF SEQUENCES: 223
                                                                                                                                                                                                                                                                                                                                                                                                         7. 9
US-08-851-843-173 STANDARD; DNA; UNC; 4029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION.
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US 08/724,643 FILING DATE: 01-0CT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           United States of America
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08
FILING DATE: 18-APR-1997
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       94111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET:
                                                                                                                                                                                                                                                                                                                                                                2820 T 2820
                                                                                                                                                                                                                                                                                                                                     2804 T 2804
                                                                                                                                                                                                                                                                                                                                                                                                                                  XXXXXX
                                     2460
                                                                                         2520
                                                                                                                                             2580
                                                                                                                                                                                                  2640
                                                                                                                                                                                                                                                      2700
                                                                2504
                                                                                                                    2564
                                                                                                                                                                       2624
                                                                                                                                                                                                                             2684
             2444
                                                                                                                                                                                                                                                                               g
                                     ò
                                                             g
                                                                                         õ
                                                                                                                    8
                                                                                                                                             ò
                                                                                                                                                                     g
                                                                                                                                                                                                   õ
                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                ð
```

2383

2279

2503

ö

Gaps

```
2039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2280 GIACTGCGTCGGTATGCCGTGGTCCAGAAGCCGCCCATGGGCACGTCCGCAAGGC 2339
                                                                                                                                                                                                                                                                                                                                                  1920 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTA 1979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2220 CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACAC 2279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       829
                                                                                                                                                                                                                                                                                                                                                                                            351
                                                                                                                                                                                                                                                                                                                                                                                                                                                    411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               667
                                                                                                                                                                                                                                                                                                                                   232 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGCTGCGGCCGATTGTGAACATGGACTA 291
                                                                                                                                                                                                                                                                         Score 508; DB 22; Length 2176;
Pred. No. 0.00e+00;
0; Mismatches 0; Indels 182; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                292 CGTCGTGGGAGCCAGAACGTTCCGCAGAGAAAAGGGGCCGAGCGTCTCACCTCGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                           1980 CGTCGTGGGAGCCAGAACGTTCCGCAGAGAAAGAGGGCCGAGCGTCTCACCTCGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           412 CTCTGTGCTGGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCTGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2460 GAATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            --------CTACGICCAGIGCCAGGGGAICCCGCAGGGCTCCAICCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2520 GCGCATCAGGGGCAAGTCCTACGTGCCAGGGGATCCCGCAGGGCTCCATCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           770 GCGGGACGGGCTGCTCCTGCGTTTGGTGATTTCTTGTTGGTGACACCTCACCTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                   352 GAAGGCACTGTICAGCGTGCTCAACTACGAGCGGGCGCGCGCCCCGGCCTCCTGGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  472 GGCCCAGGACCCGCCCCGCGCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGCGCGTACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTACTGCGTGCGTGTGGCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2400 TCACCTGCAGGAGCCAGCCCGCTGAGGGATGCCGTCGTCATCGAGCAGAGCTCCTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME: Apple, Randolph T.
REGISSRATION NUMBER: 36,429
REFERENCE/DOCKET NUMBER: 015389-002600US
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 2176 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                         y Match 56.4%;
Local Similarity 79.8%;
hes 719; Conservative
                                                                                                                                                              TOPOLOGY: linear MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----- 299
                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             899
                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                ğ
                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                 엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
    APPLICANT: Cech, Thomas R.
APPLICANT: Linguer, Joachim
APPLICANT: Indemer, Toru
APPLICANT: Nakamura, Toru
APPLICANT: Nakamura, Toru
APPLICANT: Morin, Greeg B.
APPLICANT: Harley, Callyin
APPLICANT: HUMAN TELOMERASE CATALYIIC SUBUNIT: DIAGNOSTIC AND TITLE OF INVENTION: THERAPEUTIC METHODS
NUMBER OF SEQUENCES: 335
CORRESPONDENCE ADDRESS:
                                                                                                                                              GAACTTGCGGAAGACAGTGGTGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGGC 2803
                                                                                                                                                           2760 GAACTTGCGGAAGACAGTGGTGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGGC 2819
  2580 CACGCTGCTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCG 2639
                                               GCGGGACGGGCTGCTCCTGCGTTTGGTGGATTTCTTGTTGGTGACACACCTCAC
                                                                                                      2700 CCACGCGAAAACCTTCCTCAGGACCCTGGTCCCGAGGTGTCCCTGAGTATGGCTGCGTGGT
                               2624 GCGGGACGGCTGCTCCTGCGTTTGGTGATTTTCTTGTTGGTGACACCTCAC
                                                                                         CCACGCGAAAACCTTCCTCAGGACCCTGGTCCCGAGGTGTCCCTGAGTATGGCTGCGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE: Townsend and Townsend and Crew LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Two Embarcadero Center, 8th Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION 1973

APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
CLASSIFICATION A35
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
CLASSIFICATION 3435
PRIOR APPLICATION A35
PRIOR APPLICATION 1435
FILING DATE: 18-APR-1997
FILING DATE: 18-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US/08/912,951
FILING DATE: 14-AUG-1997
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                           LT 10
US-08-912-951-3 STANDARD; DNA; UNC; 2176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY: United States of America ZIF: 94111 ZIF: 94111 MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                  Sequence 3, Application US/08912951
Sequence 3, Application US/08912951
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET:
                                                                                                                                                                                                       2804 T 2804
                                                                                                                                                                                                                                 2820 T 2820
                                                                                                                                                                                                                                                                                                         XXXXXX
                                                         2640
                                                                                      2684
                                                                                                                                              2744
                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                          q
                                                                                                                  ŏ
                                                                                                                                              셤
                                                                                                                                                                          ò
                                                                                                                                                                                                                                 ò
    ò
```

US-08-951-733-13-03.rnp

```
Query Match
Best Local &
                                                                                                                                                                                                                                                                                                          1611
                                                                                                                                                                                                                                                                                                                                 2280
                                                                                                                                                                                                                                                                                      2220
                                                                                                                                                                                                                                                                                                                                                                                               1686
                                                                                                                                                                                                                                                                                                                                                                                                                                          1686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1687
                       Matches
                                                                                                                                                                                                                                                                 1551
                                                                                                                                                     ò
                                                                                                                                                                         g
                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                 ò
                                                                                     셤
                                                                                                           ò
                                                                                                                                                                                              ò
                                                               2640 GCGGGACGGGCTGCCTCCCGGTTTGGTGATTTCTTGTTGGTGACACCTCACCTCAC 2699
                                CCACGCGAAAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGT
                                                                                                                                                                                                                                                                            and
                                                                                                                                                                                                                                                 APPLICANT: Meyerson, Matthew
APPLICANT: Weinberg, Robert A.
TITLE OF INVENTION: Telomerase Catalytic Subunit Gene &
NUMBER OF SEQUENCES: 52
CORRESPONDERS: ADDRESS: ADDRESSE: Hamilton, Brook, Smith & Reynolds, P.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C; 965 G; 735 T; 2 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                  MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION UNBER: US/09/026,981
FILING DATE: 20-FEB-1998
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                STREET: Two Militia Drive
CITY: Lexington
                                                                                                                                                                           BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REGISTRATION NUMBER: 32,227
REFERENCE/DOCKET NUMBER: WH197-11p4AM
TELECOMMUNICATION INFORMATION:
TELEPHONE: 781-861-6240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION: 433
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/064,322
FILING DATE: 30-0CT-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/055,762
FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/04,549
FILING DATE: 01-AUG-1997
PRIOR APPLICATION NUMBER: US 60/047,151
FILING DATE: 20-MAX-1997
PRIOR APPLICATION NUMBER: US 60/038,750
FILING DATE: 20-FEB-1997
APPLICATION NUMBER: US 60/038,750
FILING DATE: 20-FEB-1997
ATTORNEY/AGENT INFORMATION:
NAME: Granban, Particial
BOTISTERS ATTORNEY/AGENT INFORMATION:
NAME: Granban, Particial
                                                                                                                                                                T 11
US-09-026-981-36 STANDARD; DNA; UNC; 3346
                                                                                                                                                                                                       Sequence 36, Application US/09026981
Sequence 36, Application US/09026981
GENERAL INFORMATION:
APPLICANT: Counter, Christopher M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX: 781-861-9540 INFORMATION FOR SEQ ID NO: 36:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE 3346 BP; 617 A; 1027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 3346 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                             ZIP: 02173
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                      USA
                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                                                                               2820 T 2820
                                                                                                         T 950
                                                                                                                                                                                     XXXXXX
                                          2700
                                                                                                         950
                     830
                                                             g
                                                                                                                                                                         ò
                                                                                                        g
                                                                                                                              ö
                                           ð
```

```
1490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2819
                                                                                               1920 GTCCAGACTCCGCTTCATCCCCAAACCTGACGGGCTGCGGCCGGATTGTGAACATGGACTA 1979
                                                                          1251 GTCCAGACTCCGCTTCATCCCCAAGCCTGAGGGCTGCGGCCGATTGTGAACATGGACTA 1310
                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1980 CGTCGTGGGGGGCCCAAACGTTCCGCAGAAAAAAGAGGCCCGAGCGTCTCACCTCGAGGGT
                                                                                                                                                                                                                                                         2520 GCGCATCAGGGGCAAGTCCTACGTCCAGGGGATCCCGCAGGGCTCCATCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2580 CACGCTGCTGCACCTGTGCTACGCGACATGGAGAAAGCTGTTTGCGGGGATTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1491 GGCCCAGGACCCGCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1849 CCACGCGAAAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2700 CCACGCGAAAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGG
                                                                                                                                                     1311 CGTCGTGGGAGCCAGAACGTTCCGCAGAGAAAAAGAGGGCCGAGCGTCTCACCTCGAGGGT
                                                                                                                                                                                                                                  1431 CTCTGTGCTGGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2340 CTTCAAGAGCCACGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2460 GAATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACGCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  --------CTACGTCCAGGGGATCCCGCAGGGCTCCTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1729 CACGCTGCTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1789 GCGGGACGGCTGCTCCTGCGTTTGGTGATTTCTTGTTGGTGACACCTCAC
                                        0; Indels 182;
    Length 3346;
Score 508; DB 23;
Pred. No. 0.00e+00;
                                      0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JT 12
US-08-911-312-18 STANDARD; DNA; UNC; 3855
Similarity 79.8%;
19; Conservative
                                      719;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1969 T 1969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2820 T 2820
```

2099 2148 2159 2208 2268

```
2160 GGCCCAGGACCGCCGCCGTAGCTGTAGTTTGTCAAGGTGGATGTGACGGGCGCGTACGA 2219
                                                                   2100 CICTGTGCTGGGCCTGGACGATATCCACAGGGCCTGGCGCCTCGTGCTGCTGCTGCGTGTGCG
                                                                                                                                                                                                                                                                                      CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACAC
                                                                                                                                                                                                                                                                                                    2220 CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGGATCATCAAACCCCAGAACAC
                                                                                                                                                                                                                                                                                                                                                        GTACTGCGTGCGTCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                   2089 CTCTGTGCTGGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCG
                                                                                                                                                                                                                                 2149 GGCCCAGGACCCGCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGA
                                                                                                                                                                                                                                                                                                                                                                                                                        2340 CTTCAAGAGCCACGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2400 TCACCTGCAGGAGCCAGCCCGCTGAGGGATGCCGTCGTCGTCGAGCAGGAGCTCCTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                 CITCAAGAGCCACGIC-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2820 T 2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2627 T 2627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              XXXXXX
                                                                                                                                                                                                                                                                                     2209
                                                                                                                                                                                                                                                                                                                                          2269
                                                                                                                                                                                                                                                                                                                                                                                               2329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2700
                                                                                                                       2029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                884888
                                          δλ
                                                                                            ò
                                                                                                                       요
                                                                                                                                                   ŏλ
                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                  qq
                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
           APPLICANT: Cech, Thomas R.
APPLICANT: Cech, Thomas R.
APPLICANT: Linguer, Joachim
APPLICANT: Chapman, Raren B.
APPLICANT: Chapman, Raren B.
APPLICANT: Chapman, Raren B.
APPLICANT: Andrews, William
APPLICANT: Andrews, William
TILLE OF INVENTION: Telomerase Reverse Transcriptase NUMBER OF SEQUENCES: 170
CORRESPONDENCE ADDRESS:
ADDRESSE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, Eighth Floor
CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 508; DB 22; Length 3855;
Pred. No. 0.00e+00;
0; Mismatches 0; Indels 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: CDS
LOCATION: 56..2476
OTHER INFORMATION: /product= "hTRI"
OTHER INFORMATION: /note= "clone #712562"
SEQUENCE 3855 BP: 651 A; 1300 C; 1226 G; 678 T; 0 OTHER.
                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION DATA:
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/911,312
FILING DATE: 14-40G-1997
CLASSIFICATION: 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING APPLICATION NUMBER: US 08/724,643
FILING APPLICATION NUMBER: US 08/844,419
FILING APPLICATION NUMBER: US 08/844,419
FILING APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING APPLICATION DATA:
APPLICATION DATA:
FILING DATE: 25-APR-1997
FILING DATE: 25-APR-1997
FILING DATE: 25-APR-1997
FILING DATE: 25-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRICE ATTON NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
PRIOR PAPLICATION DATA:
APPLICATION NUMBER: US 08/912,951
FILING DATE: 14-AUG-1997
PRIOR PAPLICATION DATA:
APPLICATION NUMBER: US 08/915,503
FILING DATE: 14-AUG-1997
ATTONEY/AGENT INFORMATION:
NAME: Enhorn, Gregory P.
REGISTRATION NUMBER: 38,440
REGISTRATION NUMBER: 38,440
REGISTRATION NUMBER: 38,440
RECISTRATION NUMBER: 38,500
TELEPHONE: (415) 576-0200
TELEPHONE: (415) 576-0200
INFORMATION FOR SEQ ID NO: 18:
SEQUENCE CHARACTERISTICS:
LENGTH. 3855 DASE PAIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
Application US/08911312
Application US/08911312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     56.4%;
larity 79.8%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE: CDNA FEATURE:
Sequence 18, Applicati
Sequence 18, Applicati
GENERAL INFORMATION:
                                                                                                                                                                                                                           COUNTRY: USA
ZIP: 94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
```

```
2580 CACGCTGCTCTGCACCTGTGCTACCGCGACATGCACAAGCTGTTTGCGGGGATTCG 2639
                                                                                                                                                                                                                                                                                        2506
                                                                                                                                                                                                                                                                                                                                                                                                          2566
                                                                                       2520 GCGCATCAGGGCCAAGTCCTACGTCCCAGGGGATCCCGCAGGGCTCCATCCTCTC
                                                                                                                                                                                                                                                                                                                      2640 GCGGGACGGGCTCCTGCGTTTGGTGATTTCTTGTTGTGACACCTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2460 GAATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGT
                                                                                                                                                                        2387 CACGCTGCTCTGCAGCCTGTGCTACGGCGACATGGAGAAAAGCTGTTTGCGGGGATTCG
                                                                                                                                                                                                                                                                                     2447 GCGGGACGGCTGCTCCTGCGTTTGGTGATTTCTTGTTGGTGACACCTCACCTCAC
                                                                                                                                                                                                                                                                                                                                                                                                       2507 CCACGCGAAAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                     2567 GAACTTGCGGAAGACAGTGGTGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGGC
                                                      ---------CTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .r 13
US-08-912-951-4 STANDARD; DNA; UNC; 3855 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 4, Application US/08912951
Sequence 4, Application US/08912951
GENERAL INFORMATION:
```

ä

Gaps

Indels 182;

Mismatches

Local Similarity nes 719; Conser

Best Loca Matches e,

```
T 2627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2820 T 2820
        Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           XXXXXX
                                      Matches
                                                                                                                                                                       1980
                                                                                                                                        1969
                                                                                                                                                                                                          2029
                                                                                                                                                                                                                                         2040
                                                                                                                                                                                                                                                                          2089
                                                                                                                                                                                                                                                                                                         2100
                                                                                                                                                                                                                                                                                                                                          2149
                                                                                                                                                                                                                                                                                                                                                                           2160
                                                                                                                                                                                                                                                                                                                                                                                                              2209
                                                                                                                                                                                                                                                                                                                                                                                                                                             2220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2627
                                                                                                                                       엄
                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                       QQ
                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    유
                                                                                                         ð
                                                                                                                                                                         ö
                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
APPLICANT: Cech, Thomas R.
APPLICANT: Liggner, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Nakamura, Toru
APPLICANT: Chapman, Karen B.
APPLICANT: Morin, Gregg B.
APPLICANT: Harley, Callyin
APPLICANT: Harley, Callyin
APPLICANT: Hilliam H.
TITLE OF INVENTION: HUMAN TELOMERASE CATALYTIC SUBUNIT: DIAGNOSTIC AND TITLE OF INVENTION: THERAPEUTIC METHODS
CORRESPONDENCE: 335
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note= "nucleic acid sequence with an open reading frame encoding a delta-10 variant polypeptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OTHER INFORMATION: polypeptide"
SEQUENCE 3855 BP; 651 A; 1300 C; 1226 G; 678 T; 0 OTHER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product= "delta-182 variant
                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: ISM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION: 43.9

PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843

FILING DATE: 06-MAY-1997
CLASSIFICATION WAR:
APPLICATION NUMBER: US 08/846,017
FILING APPLICATION: 435
CLASSIFICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APP-1997
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996
CLASSIFICATION: 435
PRIOR APPLICATION: 435
PRIOR APPLICATION: 435
PRIOR PAGENT INFORMATION:
NAME: APPLE Randolph T.
REGISTRATION NUMBER: 36,429
REEFERNE APPLE RANDOLPH T.
REGISTRATION NUMBER: 36,429
REEFERNE APPLE (415) 576-0300
INFORMATION FOR SEQ ID NO: 415
ELEFRAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 415
ELEGINA SEG ID NO: 415
REGISTRATION SEG ID NO: 415
REGISTRATION SEG ID NO: 415
REGISTRATION FOR SEQ ID NO: 415
REGISTRATION FOR SE
                                                                                                                                                                                         LLP
                                                                                                                                                                                     ADDRESSEE: Townsend and Townsend and Crew STREET: Two Embarcadero Center, 8th Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
CLASSIFICATION: 435
                                                                                                                                                                                                                                                       COUNTRY: United States of America
                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US/08/912,951 FILING DATE: 14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: CDS
LOCATION: 56.2479
OTHER INFORMATION: P
                                                                                                                                                                                                     STREET: Two Embarcad
CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCATION: 1.3855
OTHER INFORMATION:
OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 14 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: -
                                                                                                                                                                                                                                                                       ZIP: 94111
```

```
GGCCCAGGACCGGCCGCCGAGCTGTACTTTGTCAAGGTGGATGTGACGGCCGCGTACGA 2208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCACGCGAAAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGT 2566
                                                                                              1920 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCCGATTGTGAACATGGACTA 1979
                                                                                                                                                                        2520 GCGCATCAGGGGCAAGTCCTACGTCCAGGGGATCCCGCAGGGCTCCATCCTCT 2579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGTCGTGGGAGCCAGAACGTTCCGCAGAAAAGAGGGCCGAGCGTCTCACCTCGAGGGT 2028
                                                                                                                                                                                                                                                                                                            CTCTGTGCTGGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCG 2148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACAC 2268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTTCAAGAGCCACGTCTTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGC 2399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2400 TCACCTGCAGGAGACCAGCCCGCTGAGGGATGCCGTCGTCATCGAGCAGAGCTCCTCCCT 2459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCGGGACGGGCTGCTCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCAC 2506
                                                                        1909 GTCCAGACTCCGCTTCATCCCCAAGCCTGAGGGTGCGGCCGATTGTGAACATGGACTA 1968
                            0; Indels 182; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2460 GAATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CACGCTGCTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 3855;
Score 508; DB 22;
Pred. No. 0.00e+00;
                                      0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-08-851-843-100 STANDARD; DNA; UNC; 2171
Similarity 79.8%;
                                    719; Conservative
```

```
------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2820 T 2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       948 T 948
                                                          411
                                    δ
                                                         g
                                                                               ò
                                                                                                       임
                                                                                                                               ò
                                                                                                                                                  g
                                                                                                                                                                            δ
                                                                                                                                                                                                 g
                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                     δý
                                                                                                                                                                                                                                                                                            윰
                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                        유
                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                  음
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1920 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGCTGCGGCCGGATGTGAACATGGACTA 1979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       231 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGCTGCGGCCGATTGTGAACATGGACTA 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Indels 183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          52.9%; Score 477; DB 21; Length 2171; 79.6%; Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: CDS
LOCATION: 22.1716
OTHER INFORMATION: /note= "Ecori-Noti insert of OTHER INFORMATION: clone 712562 encoding 63 kDa OTHER INFORMATION: telomerase protein"
SEQUENCE 2171 BP; 433 A; 667 C; 641 G; 429 T; 1 OTHER.
                                                                                                                                                                                                                                                                  SOFTWARE: Patentin Release #1.0, Version #1.30
CUBRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/851,843
FILING DATE: OG-MAY-1997
CLASSIFICATION: 536
                                                                                                                                                    ADDRESSEE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, 8th Floor
CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      015389-002930US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1; Mismatches
                              APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Chapman, Karen B.
APPLICANT: Maranta, Greeg B.
APPLICANT: Harley, Calvin
APPLICANT: Andrews, William H.
TITLE OF INVENTION: Novel Telomerase
NUMBER OF SEQUENCES: 223
                                                                                                                                                                                                                                                                                                   FILING DATE: 06-MAY-1977
CLASSIFICATION 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
CLASSIFICATION: 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION DATA:
APPLICATION NUMBER: US 08/724,643
APPLICATION NUMBER: US 08/724,643
                                                                                                                                                                                     STATE: California
COUNTRY: United States of America
                                                                                                                                                                                                                                  MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
 Application US/08851843
Application US/08851843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME: Apple, Randolph T.
REGISTRATION UNDBER: 36,429
REFERENCE/DOCKET NUMBER: 01536
TELECOMMUNICATION INFORMATION:
TELEPAN: (415) 576-0200
INFORMATION FOR SEQ ID NO: 100:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 01-OCT-1996
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2171 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH: 2171 base pair
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                       COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity 79.6%;
Matches 717; Conservative
                      GENERAL INFORMATION:
APPLICANT: Cech, 7
APPLICANT: Lingner
                                                                                                                                                                                                           94111
Sequence 100,
Sequence 100,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               õ
```

```
2100 CTCTGTGCTGGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGGCGCGC 2159
                                                                                                                                                                                                                                                                         2160 GGCCCAGGACCCGCCGCCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGA 2219
                                                                                                                                                                                                                                                                                                                                                                                                  2220 CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCCAGCATCATCAAACCCCAGAACAC 2279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2280 GTACTGCGTCGGTATGCCGTGGTCCAGAAGCCGCCCATGGGCACGTCCGCAAGGC 2339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2760 GAACTTGCGGAAGACAGTGGTGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGGC 2819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2400 TCACCTGCAGGAGACCAGCCCGCTGAGGGATGCCGTCGTCATCGAGCAGAGCTCCTCCCT 2459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2460 GAATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACCACGT 2519
                                                                                                                                                                                                                                                                                                                                                                531 CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACAC 590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     591 GTACTGCGTGCGTCGGTATGCCGTGGTCCAGAAGGCCGCC-ATGGGCACGTCCGCAAGGC 649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     708 CACGCTGCTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCG 767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            888 GAACTIGCGGAAGACAGTGGTGAACTICCCTGTAGAAGACGAGGCCCTGGGTGGCACGGC 947
351 GAAGGCACTGTTCAGCGTGCTCAACTACGAGCGGGCGCGGCGCCCCCGGCCTCCTGGGCGC
                                                                                                                        CTCTGTGCTGGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       768 GCGGGACGGGCTGCTCCTGCGTTTGGTGATTTCTTGTTGGTGACACCTCACCTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         828 CCACGCGAAAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGT
                                                                                                                                                                                                                                          471 GCCCCAGGACCCGCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGCGCGCTACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        650 CTTCAAGAGCCACGTC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 15

AC XXXXXX

AC XXXXXX

DT Sequence 100, Application US/08854050

CC GENERAL INFORMATION:

CC GENERAL INFORMATION:

CC APPLICANT: Cech, Thomas R.

CC APPLICANT: Lingner, Joachim

CC APPLICANT: Lingner, Joachim

CC APPLICANT: Chapman, Karen B.

CC APPLICANT: Mariny, Gregg B.

CC APPLICANT: Mariny, Gregg B.

CC APPLICANT: Andrews, William H.

CC APPLICANT: Andrews, William H.
```

```
Search completed: Thu Dec 24 19:19:19 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          : 2467 secs
                                                                                                                                                                                                                                                                     ------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2820 T 2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   948 T 948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Job time
                                                                    원
                                                                                                                      ద
                                                                                                                                                                      8
                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                               ò
                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1920 GICCAGACICCGCTICAICCCCCAAGCCTGACGGCCTGCGGCCGAITGIGAACAIGGACIA 1979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        231 GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGCTGCGGCCGATTGTGAACATGGACTA 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGTCGTGGGAGCCAGAACGTTCCGCAGAAAAGARGGCCGAGCGTCTCACCTCGAGGGT 350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTCTGTGCTGGGCCTGGACGATGATCCACAGGCCTGGGGCACCTTCGTGCTGCTGTGGG 470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Indels 183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 21; Length 2171;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCATION: 22..1716

OTHER INFORMATION: //note= "ECORI-Not1 insert of OTHER INFORMATION: clone 712562 encoding 63 kDa OTHER INFORMATION: telomerase protein" SEQUENCE 2171 BP; 433 A; 667 C; 641 G; 429 T; 1 OTHER.
                                                                                                                                             SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                     ADDRESSEE: Townsend and Townsend and Crew LLP STREET: Two Embarcadero Center, 8th Floor SITY: San Francisco STATE: California COUNTRY: United States of America
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ouery Match 52.9%; Score 477; DB 21; Best Local Similarity 79.6%; Pred. No. 0.00e+00; Matches 717; Conservative 1; Mismatches 0
                                                                                                                                                                                                                                                                                                                                                                                                                                          015389-002930US
                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION: 330
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/724,643
FILING DATE: 01-0CT-1996
CLASSIFICATION: 556
ATTONNEY/AGENT INFORMATION:
NAME: APPLE, Randolph T.
REGISTRATION NUMBER: 36,429
REFENCE/DOCKET NUMBER: 015389-002
TELEPHONE: (415) 576-0200
TELEPHONE: (415) 576-0300
INFORMATION FOR SEQ ID NO: 100:
SEQUENCE CHARACTERISTICS:
FENCHY: 2171 base pairs
                                                                                                                                                                                                                                                PRIOR APPLICATION: 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
CLASSIFICATION: 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION: 536
                                                                                                                                                                                                    PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
CLASSIFICATION: 536
                                                                                                                                                                     APPLICATION NUMBER: US/08/854,050 FILING DATE: 09-MAY-1997 CLASSIFICATION: 536
                                                                                                         MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOPOLOGY: linear MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            single
NUMBER OF SEQUENCES: 2:
CORRESPONDENCE ADDRESS:
                                                                                            COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRANDEDNESS:
                                                                    COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
```

```
2819
                                                                                                                                                                                                                                                                       2339
                                                                                                                                                                                                                                                                                                                                                                                                                                                   2459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2520 GCGCATCAGGGGCAAGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCC 2579
2100 CTCTGTGCTGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCG 2159
                                                                                                                                                                                                                                                                                                                                                          2340 CTTCAAGAGCCACGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGC 2399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2460 GAATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGT 2519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     827
                                                                                                                                                                                                                          649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          887
                                                                                                                             2400 TCACCTGCAGGAGACCAGCCCGCTGAGGGATGCCGTCGTCGTCGAGCAGAGCTCCTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2160 GGCCCAGGACCCGCCCGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       666 -------CTACGTCCAGGGGGATCCCGCAGGGCTCCATCCTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                708 CACGCTGCTCTGCAGCCTGTGCTTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      768 GCGGGACGGGCTGCTCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            828 CCACGCGAAAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGT
                                            471 GGCCCAGGACCCGCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGA
                                                                                                                                                                                                                        591 GTACTGCGTGCGTCGGTATGCCGTGGTCCAGAAGGCCGCC-ATGGGCACGTCCGCAAGGC
                                                                                                                                                                                                                                                                                                                650 CTTCAAGAGCCACGTC-----
```

THIS PAGE BLANK (USPTO)

*****	(TM)	***
*****	, <u>-</u>	***
***	'' '	****
*****		****
*******		******
******		*****
*******		********
******	 	****
在我的女女女女女女女女女女女女女女女女女女女女女女女女女女女女女女女女女女女女		化多合物 化多分布 化多分布 化多分布 化多分布 化多分布 化多分布 化多分布 化多分布

Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd

 $\ensuremath{n.a.}$  -  $\ensuremath{n.a.}$  database search, using Smith-Waterman algorithm with gap extension penalties as well as gap opening penalties MPsrch_nna

Thu Dec 24 18:29:00 1998; MasPar time 74.84 Seconds 561.595 Million cell updates/sec Run on:

Tabular output not generated.

>US-08-951-733-13
(1920-2820) from US08951733.seq (2 of 2)
901
1920 GICCAGACTCCGCTICATCC......AGGCCCTGGGTGGCACGGCT 2820
CAGGTCTGAGGCGAAGTAGG......TCCGGGACCCACCGTGCGGA Title: Description: Perfect Score: N.A. Sequence: Comp:

Scoring table:

TABLE default Gap open 30; Gap extend 1

88822 seqs, 23323279 bases x 2 Dbase 0; Query 0 Nmatch STD Searched:

Minimum Match 0% Listing first 45 summaries Post-processing:

n-issued 1:5_COMB 2:PCT9_COMB 3:backfiles1 Database:

Mean 8.416; Variance 4.601; scale 1.829 Statistics: Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Nesult No.	. !	Score	Query	Query Match Length DB	DB	QI	Description	Pred. No.
	-	39	4.3	7218	-	US-08-232-	Sequence 14, Applicati	4.38e-11
	7	30	3.3	215	-	US-08-238-	Sequence 5, Applicatio	1.52e-05
υ	٣	28	3.1	215	٦	US-08-238-	'n	2.24e-04
	4	56	2.9	74	~	PCT-US95-1	Sequence 94, Applicati	3.08e-03
	Ŋ	56	2.9	81	7	PCT-US95-1	92,	3.08e-03
υ	9	52	7.8	74	~	PCT-US95-1	Sequence 100, Applicat	1.11e-02
	7	25	2.8	75	~	PCT-US95-1	99,	1.11e-02
v	æ	25	2.8	81	~	PCT-US95-1	-	1.11e-02
v	6	25	2.8	81	~	PCT-US95-1	92,	1.11e-02
-	20	25	2.8	82	~	PCT-US95-1	97,	1.11e-02
Ü	11	25	2.8	7218	Н	US-08-232-	14,	1.11e-02
	12	24	2.7	74	7	PCT-US95-1	Sequence 100, Applicat	3.90e-02
U	13	24	2.7	74	7	PCT-US95-1	94, A	3.90e-02
U	14	24	2.7	75	~	PCT-US95-1	66	3.90e-02
-7	15	24	2.7	81	~	PCT-US95-1	Sequence 98, Applicati	3.90e-02
Ü	16	24	2.7	82	~	PCT-US95-1	97,	3.90e-02
-7	17	23	5.6	99	-	US-08-471-	Sequence 144, Applicat	1.34e-01
Ö	18	23	5.6	99	-	US-08-471-	Sequence 144, Applicat	1.34e-01
	19	23	2.6	69	~	US-08-471-	Sequence 142, Applicat	1.34e-01

	- ;																								
1.34e-01	-1.34e-01	1.34e-01	1.34e-01	1.34e-01	1.34e-01	1.34e-01	4.51e-01	4.51e-01	4.51e-01	4.51e-01	4.51e-01	4.51e-01	4.51e-01	4.51e-01	1.47e+00	1.47e+00	1.47e+00	1.47e+00	1.47e+00	1.47e+00	1.47e+00	1.47e+00	1.47e+00	1.47e+00	4.67e+00
Sequence 142, Applicat	.23, A	Sequence 120, Applicat	Sequence 25, Applicati	25,	Sequence 25, Applicati	Sequence 1, Applicatio	145,	143	1, 1	Sequence 1, Applicatio	Sequence 1, Applicatio	Sequence 1, Applicatio	1,	٦,	95,	145,	93, A	143,	Sequence 1, Applicatio	Sequence 16, Applicati	. 22	Patent No. 5225537.	Sequence 12, Applicati	Sequence 1, Applicatio	Patent No. 5168051.
US-08-471-	US-08-209:	US-08-133-	PCT-US94-0	PCT-US95-1	us-08-300-	US-08-273-	US-08-471-	US-08-471-	US-08-701-	us-08-258-	US-08-456-	US-08-457-	US-08-458-	US-08-457-	PCT-US95-1	US-08-471-	PCT-US95-1	US-08-471-	US-08-273-	US-07-745-	5270178-1	5225537-1	US-07-745-	PCT-US92-0	5168051-9
-	н	Н	N	7	Н	Н	Н	-	Н	<del>, -1</del>	ч	Н	H		~	-	N	Н	Н	-1	m	m	H	~	m
69	84	84	84	84	84	242	65	99	2116	7001	7001	7001	7001	7001	59	65	99	9	242	957	1387	1755	5467	5904	2671
2.6	9.2	2.6	9.2	5.6	5.6	5.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2
23	23	23	23	23	23	23	22	22	22	22	22	22	22	22	21	21	21	21	21	21	71	21	71	71	20
20	21	22	23	.24	22	56	27	28	53	30	31	32	33	34	32	36	37	38	39	40	41	43	43	44	45
υ						U	υ	υ	υ						U		ပ								O

## ALIGNMENTS

Sequence 14, Application US/08232463
Sequence 14, Application US/08232463
Sequence 14, Application US/08232463
Sequence 14, Application US/08232463
CEBURAL INFORMATION:
APPLICANT: SCHEIFLINGER, F.
APPLICANT: FALKER, F. G.
TITLE OF INVENTION: RECOMBINANT FOWLPOX VIRUS
NUMBER OF SEQUENCES: 52
CORRESPONDENCE: FOLGY & Lardher
STREET: 1800 Diagonal Road, Suite 500
CITY: Alexandria
STATE: VSA
ZIRE TOLGY & Lardher
STATE: WSA
ZIRE TOLGY & Lardher
STATE: WSA
ZIRE TOLGY & Lardher
STATE: NGA
COUNTRY: USA
ZIRE FOLGY & LARCH
COUNTRY: USA
ZIRE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATION SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATCATION NUMBER: US/08/232,463
FILING DATE:
APPLICATION NUMBER: US/08/232,463
FILING DATE:
APPLICATION NUMBER: US/07/935,313
FILING DATE:
APPLICATION NUMBER: US/08/232,463
FILING DATE: Z6-AUG-1991
ATTORNEY/AGENT INFORMATION:
NAME: BERT, Stephen A.
REFERRONGE/POCKET MINDENER. REFERENCE/DOCKET NUMBER: 29,768
REFERENCE/DOCKET NUMBER: 30472/114 IMMU
TELECOMMUNICATION INFORMATION:
TELEPHONE: (703)836-9300
TELEFAX: (703)883-4109
TELEFAX: R901/6 US-08-232-463-14 STANDARD; DNA; UNC; 7218 BP TELEX: 899149 INFORMATION FOR SEQ ID NO: 14: RESULT 

a

888888888

a

à

g

à

ð

```
APPLICANT: BENNETT, Alan
APPLICANT: LABAUTCH, John M.
APPLICANT: LABAUTCH, John M.
APPLICANT: LOWELL, Ann
APPLICANT: STOWELL, Ann
APPLICANT: STOTE, Henrik
TITLE OF INVENTION: PLANT INHIBITORS OF FUNGAL
TITLE OF INVENTION: POLYGALACTURONASES AND THEIR USE TO CONTROL FUNGAL DISEA
NUMBER OF SEQUENCES: 24
CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend Khourie and Crew
STREET: Steuart Street Tower, One Market Plaza
CITY: San Francisco
STATE: California
COUNTRY: US
                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MINVIMSSSSVVSRIASCNDKAKKDGNTISSWTIDCCNRIWGVCDIDTIYRVNNDSGHNK 60
                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                          NAME/KEY: misc_feature
LOCATION: 1..215
OTHER INPORMATION: /Standard_name= "Deduced amino acid
OTHER INFORMATION: sequence of PGIP from bean."
SEQUENCE 215 BP; 15 A; 8 C; 25 G; 26 T; 141 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 YSSANYNYGGNNVGAAKTHYYTHTNVSGADSKTVTDSYNASGTSSSNG 108
                                                                                                                                                                                                                                                                                                                                                               Match 3.3%; Score 30; DB 1; Length 215; Local Similarity 14.8%; Pred. No. 1.52e-05; es 16; Conservative 46; Mismatches 46; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATE:
US/08/238,163
FILING DATE: 03-MAY-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JT 3
US-08-238-163-5 STANDARD; DNA; UNC; 215 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME: Bastian, Kevin L.
REGISTRATION NUMBER: 34,774
REFERENCE/DOCKET NUMBER: 2307E-540
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 543-9600
TELEFA: (415) 543-5043
INFORMATION FOR SEQ ID NO: 5:
                                               REFERENCE/DOCKET NUMBER: 2307E-540 TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 5, Application US/08238163
Sequence 5, Application US/08238163
Patent No. 5569830
GENERAL INFORMATION:
               NAME: Bastian, Kevin L. REGISTRATION NUMBER: 34,774
                                                                               TELEPHONE: (415) 543-5600
TELEFAX: (415) 543-5043
INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
LENGTH: 215 base pairs
TYPE: nucleic acid
STRANDENNESS: single
   ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                        TOPOLOGY: unknown
MOLECULE TYPE: protein
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 0:
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         $$$$$$$$$$$$$$$$$$$$$$$$
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 5, Application US/08238163
APPLICANT: BENNETT, Alan
APPLICANT: DOWELL, Ann
APPLICANT: STOTZ, Henrik
TILLE OF INVENTION: POLYGALACTURONASES AND THEIR USE TO CONTROL FUNGAL DISEASE
NUMBER OF SEQUENCES: 24
CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend Khourie and Crew
STREET: Steuart Street Tower, One Market Plaza
                                                                                                                                                                                                                          2414 CCAGCCCGCTGAGGGATGCCGTCGTCATCGAGCAGCTCCTCCCTGAATGAGGCCAGCA 2473
                                                                                                                                                                                                                                                                                                                                                             2474 GIGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACCACGCGGCATCAGGGGCA 2533
                                                                                                                                                                                                                                                                                                                                                                                                                               2534 AGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGCTCCATCCTCTCCACCTGCTGCTGCTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2594 GCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGGATTCGGCGGGACGGGCTGC 2653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2654 TCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCCCACGCGAAAACCT, 2713
                                                                                                                                                                                          ö
                                                                                                 CLONE: PTZGPt-FIS
SEQUENCE 7218 BP; 1944 A; 1491 C; 1486 G; 1929 T; 368 OTHER.
                                                                                                                                                     Query Match 4.3%; Score 39; DB 1; Length 7218; Best Local Similarity 1.1%; Pred. No. 4.38e-11; Matches 4; Conservative 201; Mismatches 166; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7T 2
US-08-238-163-5 STANDARD; DNA; UNC; 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US/08/238,163
FILING DATE: 03-MAY-1994
*CLASSIFICATION: 800
SEQUENCE CHARACTERISTICS:
LENGTH: 7218 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLLOGY: linear
IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY: US
ZIP: 94105-1493
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1429 YYYYYGTACC 1439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ::::: | |||
2714 TCCTCAGGACC 2724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               XXXXXX
```

셤

```
63 BNNBNACGCC 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            70 BNNBNACGCC 79
                                                                                                                                                                                             XXXXXX
                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                    å
                                                                                                            요
                                                                                                                                                                                                                   95 TDSYNASGISSSNGGTDGNRSGADSYGSSKTAMTSRNRTGKTANNAVDSRNMGDASVGSD 154
                                                                                                                                                                                                   35 DCCNRTWGVCDTDTTYRVNNDSGHNKYSSANYNYGGNNVGAAKTHYYTHTNVSGADSKTV 94
                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 94, Application PC/TUS9511934
Sequence 94, Application PC/TUS9511934
GENERAL INFORMATION:
APPLICANT: Cytogen Corporation
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES: 103
CORRESPONDENCE ADDRESS:
                                                                                                                                                                               ö
                                                                              NAME/KEY: misc_feature
LOCATION: 1..215
OTHER INFORMATION: /standard_name= "Deduced amino acid
OTHER INFORMATION: sequence of PGIP from bean."
SEQUENCE 215 BP; 15 A; 8 C; 25 G; 26 T; 141 OTHER.
                                                                                                                                                                                                                                                                                                              2386 GCATGTACGGCTGGAGGTCTGTCGAAGGTAGAGACGTGCTCTTGAAGGCC 2337
                                                                                                                                                                                                                                                                                                 155 KNTKKHAKNSADGKVGSKNNGDRNNRYGTGTKSNVSNNCGGGNKRDVSSY 204
                                                                                                                                                      Score 28; DB 1; Length 215;
Pred. No. 2.24e-04;
62; Mismatches 84; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDIUM TYPE: Compatible Compatible COMPUTER: IBM PC compatible COMPUTER: IBM PC compatible COMPUTER: IBM PC compatible COMPUTER: IBM PC compatible SOFTWARE: PRESTRY PC-DOS/MS-DOS SOFTWARE: PAtentin Release #1.0, Version #1.30 CURRENT APPLICATION NOWBER: PCT/US95/11934 FILING DATE: 20-SEP-1995 CLASSIFICATION: ATTORNEY/AGENT INFORMATION: NAME: MISTOCK, S. Leslie REGISTRATION NOWBER: 18,872 REFERENCE/DOCKET NUMBER: 1101-196-228 TELEFRATION NUMBER: 1101-196-228 TELEFRANCE/DOCKET NUMBER: 1101-196-228 TELEFRAX: (212) 790-9090 TELEFRAX: (212) 790-9090 TELEFRAX: (212) 780-9090 TELEFRAX: (212) 780-9090 TELEFRAX: (212) 780-9090 TELEFRAX: (212) 780-9090 TELEFRAX: (212) 780-9010 SEQUENCE CHARACTERISTICS: LENGTH: 74 base pairs TYPE: nucleic acid STRANDEDNESS: Single TYPE: nucleic acid STRANDEDNESS: Single TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MOLECULE TYPE: DNA (genomic)
SEQUENCE 74 BP; 3 A; 4 C; 3 G; 1 T; 63 OTHER.
                                                                                                                                                                                                                                                                                                                                                            T 4
PCT-US95-11934-94 STANDARD; DNA; UNC; 74 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
SEQUENCE CHARACTERISTICS:
LENGTH: 215 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                      7. Match 3.1%;
Local Similarity 14.1%;
les 24; Conservative
                                              TOPOLOGY: unknown
MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY: USA
ZIP: 10036
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CITY: New York
STATE: New York
                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                   XXXXX
                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                          S,
  88888888888888
                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                        ď
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2448 GAGCTCCTCCTGCAATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTG 2507
                                                                                       Gaps
                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                           Sequence 92, Application PC/TUS9511934
Seguence 92, Application PC/TUS9511934
Seguence 92, Application PC/TUS9511934
SEGUENCE OF INFORMATION:
APPLICANT: Cytogen Corporation
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES: 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                ö
  Score 26; DB 2; Length 74; Pred. No. 3.08e-03; 19; Mismatches 43; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 26; DB 2; Length 81;
Pred. No. 3.08e-03;
19; Mismatches 43; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: TBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/11934
FILING DATE: 20-SEP-1995
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY: linear MOLECULE TYPE: DNA (genomic)
SEQUENCE 81 BP; 3 A; 5 C; 6 G; 4 T; 63 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LT 6
PCT-US95-11934-100 STANDARD; DNA; UNC; 74 BP.
                                                                                                                                                                                                                                                                                        л 5
PCT-US95-11934-92 STANDARD; DNA; UNC, 81 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1101-196-228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CORRESPONDENCE ADDRESS:
ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTORNEY AGENT INFORMATION:
NAME: Misrock, S. Leslie
REGISTRATION NUMBER: 18,872
REFERENCE/DOCKET NUMBER: 1101-:
TELECOMMUNICATION INFORMATION:
TELEPRAX: (212) 790-9090
TELERAX: (6141 PENNIE
INFORMATION FOR SEQ ID NO: 92:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE CHARACTERISTICS:
LENGTH: 81 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 2.9%;
Best Local Similarity 11.4%;
Matches 8; Conservative
Query Match 2.9%;
Best Local Similarity 11.4%;
Matches 8; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CITY: New York
STATE: New York
COUNTRY: USA
ZIP: 10036
                                                                                                                                                                                                      : : ||||||
2508 CCACCACGCC 2517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2508 CCACCACGCC 2517
```

US-08-951-733-13-03.rni

XXXXXX

```
Sequence 98, Application PC/TUS9511934
Sequence 98, Application PC/TUS9511934
GENERAL INFORMATION:
APPLICANT: CATOROGEN COMPORATION
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From TITLE OF INVENTION: Peptide Libraries NUMBER OF SEQUENCES: 103
CORRESPONDENCE ADDRESS:
ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/11934
FILING DATE: 20-SEP-1995
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
ATTORNEY/AGENT INFORMATION:
ATTORNEY/AGENT INFORMATION:
TELEPHONE: MISTOCK, S. Leslie
REGISTRATION NUMBER: 18,872
REFERENCE/DOCKET NUMBER: 1101-196-228
TELEPHONE: (212) 790-9090
TELEPHONE: (212) 790-9090
TELEFAX: (212) 869-9741/8864
TELEX: 66141 PENNIE
INFORMATION POR SEQ ID NO: 99:
SEQUENCE CHARACTERISTICS:
LENGTH: 75 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ouery Match

2.8%; Score 25; DB 2; Length 75;
Best Local Similarity 8.8%; Pred. No. 1.11e-02;
Matches 6; Conservative 20; Mismatches 42; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CITY: New York
STATE: New York
COWTRY: USA
ZIP: 1036
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION NUMBER: PCT/US95/11934
FILING DATE: 20-SEP-1995
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS: Single
TOPOLOGY: linear
MOLECULE TYPE: DNA
SEQUENCE 75 BP: 1 A: 1 C: 7 G: 5 T; 61 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JT 8
PCT-US95-11934-98 STANDARD; DNA; UNC; 81 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION:
NAME: Misrock, S. Leslie
REGISTRATION NUMBER: 18,872
REFERENCE/DOCKET NUMBER: 1101-196-228
RELECOMMUNICATION: INFORMATION:
TELEPHONE: (212) 790-9090
TELEFAX: (212) 869-9741/8864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             : :[]
1981 GTCGTGGG 1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61 NNBNNBGG 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                          Sequence 100, Application PC/TUS9511934

Sequence 100 Application PC/TUS9511934

GENERAL INFORMATION:

GENERAL INFORMATION:

TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From TITLE OF INVENTION: Peptide Libraries NUMBER OF SEQUENCES:

ADDRESSE: Pennie & Edmonds

CORRESPONDENCE ADDRESS:
ADDRESSE: Pennie & Edmonds

CITY: New York
STARET: New York
COUNTER: New York
COUNTER READABLE FORM:
COMPUTER: IBM PC Compatible
COMPUTER: IBM PC Compatible
COMPUTER: Patentin Release #1.0, Version #1.30

CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/11934

FILING DATE: 20-SEP-1995

CLASSIFICATION:
REGISTRATION NUMBER: 18,872

REGISTRATION NUMBER: 18,872

CLASSIFICATION NUMBER: 18,872

REGISTRATION NUMBER: 18,872

CLASSIFICATION NUMBER: 18,872

CLEEPHONE: (212) 869-9741/8864

TELEFAX: (614) PENNIE

INFORMATION FOR SEQ ID NO: 100: SEQUENCE CHARACTERISTICS:
CENTRE NUMBER: SINGle

STATESS: SINGle

TTELES: 6144 PENNIE

TTELES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 99, Application PC/TUS9511934

C GENERAL INFORMATION:
C APPLICANT: Cytogen Corporation
C TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From TITLE OF INVENTION: Peptide Libraries
C ORRESPONDENCE ADDRESS:
C CORRESPONDENCE ADDRESS:
C ADDRESSE: Pennie & Edmonds
C STREET: 1155 Avenue of the Americas
C CITY: New York
C COUNTRY: USA
C ZIP: 10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Natch 2.8%; Score 25; DB 2; Length 74; Local Similarity 10.1%; Pred. No. 1.11e-02; Pred. 7; Conservative 20; Mismatches 42; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TOPOLOGY: linear MOLECULE TYPE: DNA (genomic) SEQUENCE 74 BP; 6 A; 6 C; 1 G; 1 T; 60 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  T 7
PCT-US95-11934-99 STANDARD; DNA; UNC; 75 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2299 CATACCGAC 2291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  62 NVNNACCAC 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ouery Match
```

XXXXXX

Best Loca Matches

S

셤

0; Gaps

US-08-951-733-13-03.rni

```
2617 TCTCCATGTCGCCGTAGCACAGGCTGCAGCGTGGAGGAGGATGGAGCCCTGCGGGA 2558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 97, Application PC/TUS9511934
Sequence 97, Application PC/TUS9511934
GENERAL INFORMATION:
APPLICANT: Cytogen Corporation
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From
TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES: 103
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.8%; Score 25; DB 2; Length 82; Similarity 8.8%; Pred. No. 1.11e-02; 6; Conservative 20; Mismatches 42; Indels
                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/11934
FILING DATE: 20-SEP-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MOLECULE TYPE: DNA (genomic)
SEQUENCE 82 BP; 1 A; 2 C; 10 G; 8 T; 61 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JT 11
US-08-232-463-14 STANDARD; DNA; UNC; 7218 BP.
                                                                                        JT 10
PCT-US95-11934-97 STANDARD; DNA; UNC; 82 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1101-196-228
                                                                                                                                                                                                                                          ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                               ATTORNEY/AGENT INFORMATION:
NAME: Misrock, S. Leslie
REGISTRATION UNBER: 18,872
REFERENCE/DOCKET NUMBER: 1101--
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
TELEFAX: (212) 869-9741/8864
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 97:
SEQUENCE CHARACTERISTICS:
LENGTH: 82 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 14, Application US/08232463 Sequence 14, Application US/08232463 Patent No. 5670367 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DORNER, F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                    CITY: New York STATE: New York
                                                    2557 TCCCCTGGCAC 2547
                                                                                                                                                                                                                                                                                                                                                                                                                       CLASSIFICATION:
                             66 NBNNBNNBNAC 76
                                                                                                                                                                                                                                                                                             USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 6; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1981 GICGIGGG 1988
                                                                                                                                                                                                                                                                                             COUNTRY: US ZIP: 10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     68 NNBNNBGG 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
ID US
AC XX
DT
DE Se
CC Se
CC G
CC C
                                                                                         ά
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                              2359 IAGAGACGIGGCICIIGAAGGCCIIGCGGACGIGCCCAIGGGCGGCCTICIGGACCACGG 2300
                                                                                                                                                                             0; Gaps
                                                                                                                                                                                                                                                                                                                                         Sequence 92, Application PC/TUS9511934
Sequence 92, Application PC/TUS9511934
GENERAL INFORMATION:
APPLICANT: Cytogen Corporation
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From
TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES: 103
CORRESPONDENCE ADDRESS:
                                                                                                                             Score 25; DB 2; Length 81;
Pred. No. 1.11e-02;
20; Mismatches 42; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              44; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 2.8%; Score 25; DB 2; Length 81; Best Local Similarity 9.9%; Pred. No. 1.11e-02; Matches 7; Conservative 20; Mismatches 44; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 98:
SEQUENCE CHARACTERISTICS:
LENGTH: 81 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
SEQUENCE 81 BP; 6 A; 6 C; 4 G; 5 T; 60 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY: linear MOLECULE TYPE: DNA (genomic) SEQUENCE 81 BP; 3 A; 5 C; 6 G; 4 T; 63 OTHER.
                                                                                                                                                                                                                                                                                          .r
PCT-US95-11934-92 STANDARD; DNA; UNC; 81 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
CITY: New York
STATE: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEPHONE: (212) 790-9090
TELERA: (212) 869-9741/8864
TELER: (614) PENNIE
INFORMATION FOR SEQ ID NO: 92:
SEQUENCE CHARACTERISTICS:
LENGTH: 81 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE/DOCKET NUMBER: 11-
TELECOMMUNICATION INFORMATION:
                                                                                                                             Query Match 2.8%;
Best Local Similarity 10.1%;
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ZIP: 10036
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                      2299 CATACCGAC 2291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                USA
                                                                                                                                                                                                                             69 NVNNACCAC 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                                                                                                                                                                                                                                      XXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                      å
                                                                                                                                                                                                       g,
                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                       g
   88888888888
```

ö

Gaps

```
2268 ACCCCA 2273
                                                                                                                                                                                                                                                                                                                                                                        66 ACCACA 71
                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                          ô
                                                                                                                                                                                                                                                                                                                                                                                                                                2079 CGGCGCCCGCTGAGTTGAGCACGCTGAACAGTGCCTTCACCCTCGAGGTGAGACGCTC 2020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2019 GGCCCTCTTTTCTCTGCGGAACGTTCTGGCTCCCACGACGTAGTCCATGTTCACAATCGG 1960
                                                                                                                                                                                                                                                                                                                                                                                                                              0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 100, Application PC/TUS9511934
Sequence 100, Application PC/TUS9511934
GENERAL INFORMATION:
APPLICANT: Cytogen Corporation
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES: 103
CORRESPONDENCE ADDRESS:
ADDRESSEE: Pennie & Edmonds
                                                                                                                                                                                                                                                                                                                                                                               CLONE: pTZgpt-F1s
SEQUENCE 7218 BP; 1944 A; 1491 C; 1486 G; 1929 T; 368 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                           Score 25; DB 1; Length 7218;
Pred. No. 1.11e-02;
76; Mismatches 53; Indels
                                                                                                     COMPUTER READBLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/232,463
APPLICANT: SCHEIFLINGER, F.
APPLICANT: FALKNER, F. G.
TITLE OF INVENTION: RECOMBINANT FOWLPOX VIRUS
CORRESPONDENCE: 52
CORRESPONDENCE ADDRESS:
                                                                                                                                                           APPLICALL.

APPLICALL.

FILING DATE:

CLASSIFICATION: 435

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US/07/935,313

FILING DATE: DE 91 114 300.6

FILING DATE: 26-AUG-1991

ATORNEY/AGNT INFORMATION:

NAME: BENT, Stephen A.

REGISTRATION NUMBER: 29,768

C. REFERENCE/DOCKET NUMBER: 30472/114 IP

TELEPHONE: (703)836-9300

"FLEPHONE: (703)836-9300

"FLEPAK: (703)683-4109
                                                                                                                                                                                                                                                                     30472/114 IMMU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .T 12
PCT-US95-11934-100 STANDARD; DNA; UNC; 74 BP.
                                         AUDRESSEE: Foley & Lardner
STREET: 1800 Diagonal Road, Suite 500
CITY: Alexandria
                                                                                                                                                                                                                                                                                            TELEFAX: (703)683-4109
TELEX: 899149
INFORMATION FOR SEQ ID NO: 14:
SEQUENCE CHARACTERISTICS:
LENGTH: 7218 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 2.8%;
Best Local Similarity 1.5%;
Matches 2; Conservative
                                                                                                                                                                                                                                                                                                                                                               linear
                                                                            STATE: VA
COUNTRY: USA
ZIP: 22313-0299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1426 YYYYYYYYGT 1436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    :: :::||
1959 CCGCAGCCCGT 1949
                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY: line
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
```

```
2208 GGGCGCGTACGACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAA 2267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 94, Application PC/TUS9511934
C Sequence 94, Application PC/TUS9511934
C Sequence 94, Application PC/TUS9511934
C SEQUENCE STORM COTORIATION:
C TITLE OF INVENTION: Applide Libraries
C CORRESPONDENCES: 103
C CORRESPONDENCES: 103
C CORRESPONDENCE Pennie & Edmonds
STREET: 1155 Avenue of the Americas
C CITY: New York
C COUNTRY: USA
C COUNTRY: USA
C COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 2.7%; Score 24; DB 2; Length 74; Best Local Similarity 7.6%; Pred. No. 3.90e-02; Matches 5; Conservative 20; Mismatches 41; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOLECULE TYPE: DNA (genomic)
SEQUENCE 74 BP; 6 A; 6 C; 1 G; 1 T; 60 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  J. 13
PCT-US95-11934-94 STANDARD; DNA; UNC; 74 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1101-196-228
                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: Patentin Release #1.0, Vers
CURRENT APPLICATION DATA:
APPLICATION NAMES: PCT/US95/11934
FILING DATE: 20-SEP-1995
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Misrock, S. Leslie
REGISTRATION NUMBER: 18,872
REERENCE/DOCKET NUMBER: 1101-196-228
REDESCOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
TELEPHONE: (212) 869-9741/8864
TELEX: 66141 PRINIE
INFORMATION FOR SEQ ID NO: 100:
SEQUENCE CHARACTERISTICS:
LENGTH: 74 base pairs
TYPE: NUCLEIC GOLD
STRANDENESS: SINGLE
1155 Avenue of the Americas
                                                                                            STAID.
COUNTRY: USA
ZIP: 10036
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
~~MEDIUM TYPE: ROMPY disk
~~MEDIUM TYPE: ROMPY disk
~~AMPUTER: IBM PC compatible
~~AMPUTER: OF COMPATIBLE
~~AMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: PCT/US95/11934 FILING DATE: 20-SEP-1995 CLASSIFICATION: ATTORNEY AGENT INFORMATION: NAME: Misrock, S. Leslie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
CMDIUM TYPE: Floppy disk
CMDUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION DATA:
APPLICATION NUMBER: PC'
                                              New York
: New York
RY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
```

```
Best Local Similarity 6.2%;
Matches 4; Conservative
                                                                                                                                                         XXXXXX
                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                              ద
                                                                                                                                             2274 CTGGGGTTTGATGATGCTGGCGATGACCTCCGTGAGCCTGTCGCGGGATGGTGTCGTA 2215
                                                                                                                                                                                                          0; Gaps
                                                                                                                                                                                                                                                                                                                                               Sequence 99, Application PC/TUS9511934
Sequence 99, Application PC/TUS9511934
GENERAL INFORMATION:
APPLICANT: Cytogen Corporation
TITLE OF INVENTION: Antigen Binding Peptides (Abtides) From
TITLE OF INVENTION: Peptide Libraries
NUMBER OF SEQUENCES: 103
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER: New JOLA
COUNTRY: USA
ZIP: 10036
COMPUTER READABLE FORM:
MEDIUM TYPE: FLOPPY disk
COMPUTER: IBM FC COMPATIBLE
COMPUTER: IBM FC COMPATIBLE
COMPUTER: IBM FC COMPATIBLE
COMPUTER: IBM FC COMPATIBLE
COMPATIGN SYSTEM: PCT-V0S95/11934
FILING DATE: 20-SEP-1995
CLASSIFICATION NUMBER: PCT-V0S95/11934
FILING DATE: 20-SEP-1995
CLASSIFICATION NUMBER: 1101-196-228
REGISTRATION NUMBER: 1101-196-228
REFERENCE/DOCKET NUMBER: 1101-196-228
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
TELECANCE CAPACTERISTICS:
LENGTH: 75 base pairs
TYPE: nucleic acid
STRANDEDNESS: SINGle
C TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
C TOPOLOGY: linear
MOLECULE 75 BP: 1 A; 1 C; 7 G; 5 T; 61 OTHER.
                                                                                                                                                               Score 24; DB 2; Length 74;
Pred. No. 3.90e-02;
20; Mismatches 39; Indels
REGISTRATION NUMBER: 18,872
REFERENCE/DOCKET NUMBER: 1101-196-228
TELECOMMUNICATION INFORMATION:
TELEFAX: (212) 869-9090
TELEFAX: (212) 869-9741/8864
TELEFX: (6141 PENNIE
INFORMATION FOR SEQ ID NO: 94:
SEQUENCE CHARACTERISTICS:
LENGTH: 74 base pairs
TYPE: nucleic acid
STRANDENNESS: SINGLE
                                                                                                                     TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
SEQUENCE 74 BP; 3 A; 4 C; 3 G; 1 T; 63 OTHER.
                                                                                                                                                                                                                                                                                                        JT 14
PCT-US95-11934-99 STANDARD; DNA; UNC; 75 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the Americas
CITY: New York
STATE: New York
                                                                                                                                                               Query Match 2.7%;
Best Local Similarity 6.3%;
Matches 4; Conservative
                                                                                                                                                                                                                                                                        2214 CGC 2212
                                                                                                                                                                                                                                                   69 CGC 71
                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                  셤
    888888888888888888
```

DB 2; Length 75;

2.7%; Score 24;

Query Match

```
ö
                                0; Gaps 0;
                                                                                                                                                    2624 AGCTIGITCICCATGICGCCGIAGCACAGGCIGCAGAGCAGCGIGGAGGAIGGAGCCC 2565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2208 GGGCGCGTACGACACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAA 2267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 98, Application PC/TUS9511934
C Sequence 98, Application PC/TUS9511934
C SEQUENCE INFORMATION:
C APPLICANT: Cytogen Corporation
TITLE OF INVENTION: Peptide Libraries
C NUMBER OF SEQUENCES: 103
C CORRESPONDENCE ADDRESS:
C ADDRESSE: Pennie & Edmonds
C CITY: New York
C CITY: New York
C COUNTRY: USA
C CAIPT: New York
C C CAIPT: New York
Pred. No. 3.90e-02;
20; Mismatches 41; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ouery Match 2.7%; Score 24; DB 2; Length 81; Best Local Similarity 7.6%; Pred. No. 3.90e-02; Matches 5; Conservative 20; Mismatches 41; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/11934 FILING DATE: 20-SEP-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY: linear MOLECULE TYPE: DNA (genomic)
SEQUENCE 81 BP; 6 A; 6 C; 4 G; 5 T; 60 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                 JT 15
PCT-US95-11934-98 STANDARD; DNA; UNC; 81 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1101-196-228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Search completed: Thu Dec 24 18:30:36 1998 Job time: 96 secs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEPHONE: (212) 790-9090
TELERA: (212) 869-9741/8864
TELER: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 98:
SEQUENCE CHARACTERISTICS:
LENGTH: 81 base pairs
TYPE: nucleic acid
TYPE: nucleic acid
TYPE: nucleic acid
TYPE: stan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
NAME: Mistock, S. Leslie
REGISTRATION NUMBER: 18,872
REFERENCE/DOCKET NUMBER: 116
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRANDEDNESS:
TOPOLOGY: lir
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2268 ACCCCA 2273
                                                                                                                                                                                                                                                             :11
2564 TGCGG 2560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      73 ACCACA 78
                                                                                                                                                                                                                  64 NNBGG 68
```

THIS PAGE BLANK (USPTU)

330 0.8 201 330 0.8 201 330 0.8 201 330 0.8 565 229 0.8 1580 229 0.8 1580 229 0.8 2287 22 0.7 2587 22 0.7 1572 22 0.7 1573 23 0.7 1573 24 0.7 1573 25 0.7 1573 27 0.7 1573 27 0.7 1573 27 0.7 1573	0000000 000000000000000000000000000000		0.7	AF015950 40	das. AF015950 92330016 human. Homo sapiens Eukaryotae; mit	<pre>1 (bases 1 to Nakamura,T.M., Andrews W U T</pre>	Telomerase cata Science 277 (53 97400623 2 (bases 1 to	Morin,G.B. Direct Submissi Submitted (24-J Menlo Park, CA	1
00 00 00 00			o R	RESULT 1 LOCUS DEPINITION	ACCESSION NID NEWOODS SOURCE ORGANISM	REFERENCE	TITLE JOURNAL MEDLINE REFERENCE		FEATURES SOUTCE GOOGLE
	Lnna n.a. with 1: 1r output no	Title: >US-08-951-733-19 Description: (1-3798) from USO8951733.seq ' Perfect Score: 3798 N.A. Sequence: 1 CCACGCGTCCGGGCAGCGCT	Nmatch STD : Dbase 0; Query 0 Searched: 567134 seqs, 1101898692 bases x 2	Post-processing: Minimum Match 0% Listing first 45 summaries	Database: embl55 1:em_ba 2:em_fun 3:em_htg 4:em_huml 5:em_hum2 6:em_in 7:em_om 8:em_or 9:em_ov 10:em_pat 11:em_ph 12:em_pl 13:em_ro 14:em_vi Database: genbank107 15:9b_ba1 16:9b_bat 217:9b_htg 18:9b_in 19:9b_ov 21:9b_pat 22:9b_ph 23:9b_pl1 24:9b_pl2 25:9b_pr1 26:9b_pr2 27:9b_pr3 28:9b_ro 29:9b_st 30:9b_st 31:9b_sy 32:9b_un 33:9b_v1	Statistics: Mean 11.964; Variance 6.048; scale 1.978	Fred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.	SUMMARIES Result Query No. Score Match Length DB ID Description Pred. No.	1 3784 99.6 4015 27 AF015950 Homo sapiens telomeras 0.00e+00 2 3770 99.3 4027 27 AF018167 Homo sapiens telomeras 0.00e+00 4 1079 28.4 3269 28 AF073311 Mus musculus telomeras 0.00e+00 5 1079 28.4 326 28 AF051311 Mus musculus telomeras 0.00e+00 6 129 3.4 201 28 AF05191 Mus musculus telomeras 0.00e+00 6 129 3.4 201 28 AF051931 Mus musculus telomeras 7.48e-73 7 67 1.8 7218 21 166494 Sequence 14 from paten 1.39e-13 9 37 1.0 74371 26 AC005369 Homo sapiens chromosom 5.37e-06 5 11 35 0.9 215 21 128278 Sequence 5 from patent 3.10e-04 c 11 35 0.9 74371 26 AC005369 Homo sapiens chromosom 3.10e-04 c 12 34 0.9 74371 26 AC005369 Homo sapiens chromosom 3.10e-04

```
1015 bp mRNA PRI 16-AUG-1997 celomerase reverse transcriptase (hTRT) mRNA, complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -UTL-1997) Geron Corporation, 230 Constitution Drive, A 94025, USA
tion/Qualifiers
   5.30e-02
5.30e-02
5.30e-02
5.30e-02
1.81e-01
1.81e-01
1.96e+00
1.9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        itochondrial eukaryotes; Metazoa; Chordata;
ammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          o 4015)
, Morin,G.B., Chapman,K.B., Weinrich,S.L.,
Lingner,J., Harley,C.B. and Cech,T.R.
talytic subunit homologs from fission yeast and }
5328), 955-959 (1997)
Synthetic DNA for prep S.griseus gene for prep DNA encoding envelope Epstein-Barr virus (Wilman DNA sequence fro *** SEQUENCING IN PROG HOMO sapiens Chromosom GDNA encoding envelope Epstein-Barr virus Bam Bos taurus DNA polymer Wustela vison microsat S.marcescens proBA gen Drosophila melanogaste Epstein-Barr virus (B9 S.coelicolor 6 actVA r Azotobacter vinelandii S.pombe chromosome I C Human DNA sequence fro Drosophila melanogaste Drosophila melanogaste Drosophila melanogaste Human DNA sequence *** SEQUENCING IN PROG *** SEQUENCING IN PROG Human DNA sequence *** Epstein-Barr virus, ar Homo sapiens chromosom
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .4015
ganism="Homo sapiens"
>_xref="taxon:9606"
issue_type="kidney"
A10161
A10158 ...
A10152
A10152
A10152
A10159
B104076
HS4751752A
AC004450
HUACO04787
HC179031
ACO1051
MVU92534
SPROBAG
BROBAG
BR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HS4B958RAJ
HUAC004787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AC004450
AC004946
HS754E20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 _stage="embryo'
omosome="5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .3454
e="hTRT"
on_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -"hTRT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4015)
      ion
                                                            448464646468686694664486646644
```

```
LUGGARO SE FULL DE VASILEN V LOCALINAN VOU L'ANTERNACALE V
LUADECAYOUGE LI DE VASILEN V LOCALINAN VOU L'ANTERNACATE V
LUADECAYOUGE LE VERREGANDE PERREGCERANNHSVERGOUGE PA
PGARREGGSASRILE LE REREGANDE PERSENDENT REGEDE POYAGET REFERENCE SERVENDEN PERSENDENT PERSENT 
                                                                                                                                                                                          /translation="MPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLVQRGDP
                                                                                                                                                                                                                                                                                        AAFRALVAQCLVCVPWDARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLĀFGFA
LLDGARGGPPEAFTTSVRSYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCALFV
reverse
```

Length 4015; 663 BASE COUNT ORIGIN

ö 180 192 240 252 300 360 420 480 540 552 900 120 312 372 432 492 612 9 72 9 Gaps GCCGCTGGCCACGTTCGTGCGGCCCTGGGGCCCCAGGGCTGGCGGCTGGTGCAGCGCGG GGACCCGGCGCGTTTCCGCGCGCGCTGGTGCCTGGTGTGCGTGTGCCTGGGACGC ACGGCCGCCCCCCCCCCCCTCCTTCCGCCAGGTGTCCTGAAGAGGAGCTGGTGGT GGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCTCGGCGCTGCCAC TCAGGCCCGGCCCCCCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGGC GCAGCGCTGCGTCCTGCTGCGACGTGGGAAGCCCTGGCCCCGGCCACCCCCGCGATGCC CCGCGTGGCCGACGTGCTGCTGCTGCTGCACGCTGCGCCGCTCTTTGTGCTGGT ö 1; Indels Score 3784; DB 27; Pred. No. 0.00e+00; 0; Mismatches 1; Query Match 99.6%; Best Local Similarity 100.0%; Matches 3785; Conservative Н 13 61 73 121 193 253 313 373 433 541 133 181 241 301 421 481 493 553 361 601 셤 ò a ö 셤 à 원 δý 셤 ò 원 ò 용 δ a ö a õ g ò Q

672

613

à

<b>q</b> a	661	CATAGCGTCAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCCCCGGGTGCGA
<b>S</b>	• 1	ייס מיני לייט מיני מיני מיני מיני מיני מיני מיני מ
a ò	721	
đ	781	GCCCTGAGCCGGAGCGGACGCCGTTGGGCAGGGGTCCTGGGCCCACCCGGGCAGGAC 8
ΟŊ	793	
QQ	841	GTGGACCGAGTGACCGTGGTTTCTGTGTGTGTCACCTGCCACCACCCGCGAAGAAGC 9
δλ	853	CGTGGACCGAGTGACCGTGGTTTCTGTGTGTCACCTGCCAGACCCGCCGAAGAAGC 9
g	901	CICITITGGAGGGGGCGCTCTCTGGCACGCGCCACTCCCACCCATCCGTGGGCCGCCA 9
ΟŊ	913	ACCICIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
qq	961	ACCGGGCCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTC 102
QY	973	CACCACGCGGGCCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTCC 1
අධ	N	
ΟŊ	1033	ccesteraceccaagaccaacactrccrcractcrcageceacaagaagcaecrece 1
q	1081	CCTCCTTCCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGA 114
Qy	1093	ccercerrecracicadereresadececadecreacedecececedaded 11
q	1141	TCTGGGTTCCAGGCCTGGATGCCAGGACTCCCCGCAGGTTGCCCCGCT 120
Qy	1153	ACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCG
qq	1201	CTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCA 126
οy	1213	ccccascscractsscaaarscscccccrsrrctssascracscacscars
qq	1261	TIGETCTCAAGACGCACTGCCCGCTGCGAGCTGCGGTCACCCCAGC 13
δŏ	1273	Teccetacesesterteteaagaesearteceseteceagtecestecestere
q	1321	CCGGGAGAAGCCCCAGGCTCTGTGGCGGCCCCCGAGGAGGA 1
ΟŊ	1333	GCCGGTGTCTGTGCCCCGGGAGAAGCCCCAGGGCTCTGTGGCGGCCCCCCGAGGAGGAGGA 13
QQ	1381	GCCTGGTGCAGCTGCTCCGCCAGCACCCCCTGGCAGGTGTA 144
ΟŽ	1393	ACAGACCCCGTCGCCTGGTGCAGCTGCTCCGCCAGCACAGCAGCCCCTGGCAGGTGTA 14
qa	1441	GGCCTGCCTGCGCCGGCTGGTGCCCCCAGGCCTCTGGGGCTCCAGGCA 150
QΫ	1453	Gecricardes de la constant de la con
qa	1501	CCGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAA 15
δλ	1513	AACGAACGCCGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGC AACGAACGCCGCTTCCTCAGGAACAACAAGAAGTTCATCTCCCTGGGGAAGCATGC
QQ Q	1561	GCAGGAGCTGACGTGGAAGATGAGCGTGCGGGACTGCGCTTGGCTGCGCAG 1
Qy	1573	CTCTCGCTGCAGGAGCTGAGATGAGATGAGCGGGGGACTGCGCTTGGCTGCGCAGAGATGAGCATGCGGGGACTGCGCTTGGCTGCGCAGAGATGAGATGAGCAGGAGACTGCGGGACTGCGGGACTGCGCTTGGCTGCGCAGAGATGAGATGAGATGAGGAGAGAGA
QQ	1621	GGGGTTGGCTGTCCGGCCGCGGAGACCACCGTCTGCGTGAGAGAACCTCGGC 168
Qy	1633	AGCCCAGGGGTTGGCTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGGC 1
q	œ	### TECACTGGCTGATGAGTGTAGTCGTCGAGCTGCTCAGGTCTTTTTTA 174
δλ		AAGTICCIGCACIGGCIGAIGAGIGIGIACGICGICGAGCIGCICAGGICIIICII
q	1741	IGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAGTGTCTGGAG 1800

	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	LOCUS LOCUS DEFINITION ACCESSION NID
	CAGCCTGTGCTACGGCGACATGGAGAAGCTGTTTGCGGGGATTCGGCGGGACGGGCT 265 GCTCCTGCGTTTGGTGATTTCTTGTGGTGACACCTCACCTCACCCACC	2761 GACAGTGGTGAACTTCCCTGTAGAACACGAGGCCTGGGTGGCACGGCTTTTGTTCAGAT 2820 [111111111111111111111111111111111111
8	6 6 6 6 6	90 A

οy	2833	GCCGGCCCACGGCCTATTCCCCTGGTGCGGCCTGCTGGATACCCGGACCCTGGAGGT 2892
8	2881	CAGAGCGACTACTCCAGCTATGCCCGGACCTCCATCAGAGCCAGTCTCACCTTCAACC
٥y	2893	GCAGAGCGACTACTCCAGCTATGCCCGGACCTCCATCAGGCCAGTCTCACCTTCAACCG 2952
q	2941	CGGCTTCAAGGCTGGGAACATGCGTCGCAAACTCTTTGGGGTCTTGCGGCTGAAGTG 3000
Qy	2953	GGCTTCAAGGCTGGGAAGGAACATGCGTCGCAAACTCTTTGGGGTCTTGCGGCTGAAGT
q	3001	TCACAGCCTGTTTCTGGATTTGCAGGTGAACAGCCTCCAGACGGTGTGCACCAACATCTA 3060
Qy	3013	GTGCAC
q	3061	CAAGATCCTCTGCTGCTGCAGGCGTACAGGTTTCACGCATGTGTGCTGCAGCTCCCATTTCA 3120
ΟŊ	3073	SATCCTCCTGCTGCAGGCGTACAGGTTTCAGGCATGTGTGCTGCTGCAGTTTTCAGGTTTCAGGATGTGTGCGAGCTGCCATTT
đ	3121	TCAGCAAGTITGGAAGCCCCACATITITCCTGCGCGTCATCTCTGACAGGCCTCCCT 3180
Qy	3133	CAGCAAGTTTGGAAGAACCCCCACATTTTTCCTGCGCGTCATCTCTGGACACGG
Q	3181	CIGCTACTCCATCCTGAAAGCCAAGAACGCAGGGATGTCGCTGGGGGCCCAAGGGCCCCGC 3240
Qy	3193	- 😝
QQ	4	CGGCCCTCTGCCCTCCGAGGCCGTGCAGTGCCACCAAGCATTCCTGCTCAAGCT 3300
δy	3253	GGCCCTCTGCCCTCCGAGGCCGTGCGTGTGCCACCAAGCATTCCTGCT
අ ද	3301	GACTCGACACTGTCACCTACGTGCCACTCCTGGGGTCACTCAGGACACCCCAGACGCC 3360  [1]
5	1	מיניו מיני מיני מיני מיני מיני מיני מיני
음 ò	3361	GCTGAGTCGGAAGCTCCCGGGGACGACGACGCTGACTGCCCTGGAGGCCGCAGCCAACCCGGC 3420
q	42	CTGCCCTCAGACTTCAAGACCATCCTGGACTGATGGCCACCCGCCCACAGGCCAG 348
δλ	3433	
đ	3481	AGCAGCCCTGTCACGCCGGGCTCTACGTCCCAGGGAGGGA
Qy	3493	GAGCAGACACCAGCAGCCCTGTCACCCGGGCTCTACGTCCCAGGGAGGG
QQ	3541	CGCACCGCTGGGAGTCTGAGTGAGTGAGTGTTTGGCCGAGGCCT
ολ	3553	CACACCCAGGCCCCCCCCCCGGGAGTCTGAGCCTGAGTGAG
q	3601	ATGTCCGGCTGAAGGCTGAGTCCGGCTGAGGCCTGAGCGAGTGTCCAGCCAAGGG
QY	3613	3TCCGGCTGAAGGCTGAGTGTCTGTTTTTTTTTTTTTTTT
q	3661	AGTGTCCAGCACCACCGCGTCTTCACTTCCCCACAGGCTGGCGCTCGGCT
ΟŸ	3673	3TCCAGCACCACCACCTTCCCCACACAGCTGGCTCGCTCGGCTCCACCCC
q	3721	SCCAGCTTTTCCTCACCAGGAGCCCGGCTTCCACTCCCCACATAGGAATAGTCCATC
Qγ	3733	GGCCAGCTTTTCCTCACCAGGAGCCCGGCTTCCACTCCCCCACATAC
đ	3781	CCAGAT 3786
Οy	3793	CTGAT 3
RESI LOCI	ULT US INITION	2 AF018167 4027 bp mRNA PRI 29-AUG-1997 Homo sapiens telomerase catalytic subunit (hEST2) mRNA. complete
. ri	SSIO	8167
NID		1712

4

```
863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                912 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       972
                                                                                                                            203
                                                                                                                                                                                                                                      263
                                                                                                                                                                                                                                                                                          312
                                                                                                                                                                                                                                                                                                                                                                                               372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        983
                           143
                                                                            192
                                                                                                                                                                                   252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                         ద
                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                       유
                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             οğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                           ò
                                                                                                                          δý
                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PGARRRGGSASRSLPLPKRPRRGAAPEPERTPVGGGSWAHPGFRRGPSDRGFCVYSPA
RPAEEATSLEGALSGTRHSHPSVGRQHHAGPPSTSRPPRPWDTPCPPVYAETKHLYS
SGDKEQLRSPLASSLAPSLTGARRLYETIFIGSRPWMPGTPRRLPRLPRLPRLPSRYWMRPL
FLELLGNHAQCPYGYLLKHCPLRAAVTPAAGKGRREWPGGSVAAPEEEDTDPRRLV
LLRQHSSPWQYGFYAACLRRLVPPGLWGSRHNERRFLRNTKFFISLGKL
TWKMSVRGCAWLRRSPGCVPAAEHRLREEILAKFLHWLMSVYVVELLRSFFYVTET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TFORMELFYRKSWORLOSICITEMENTOLERENE INFORMET TO THE TENDENCE TO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product-"telomerase catalytic subunit"
/db_xref="PID:92347129"
/translation="MPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLVQRGDP
/translation="MPRAPPAARSFROYSCLKELVARVLQRLCERGAKNVLAFGFA
LLDGARGGPPEAFTFSYRSYLPNTVTDALRGSGAWGLLLRRVGDDVJVHLLARGALF
LVAPSCAYQVGGPPLYQLGAATQARPPPHASGPRRRLGCERAWHSVREAGVPLGLPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IRRDGLILRLVDDFILLVTPHLTHAKTFLRTLVRGVPEYGCVVNLRKTVVNFPVEDEAL
GGTAFVQMPAHGLFPWCGLLLDTRTLEVQSDYSSYARTSIRASLTFNRGFKAGRNMRR
KLFGVLRLKCHSLFLDLQVNSLQTVCTNIYKILLLQAYRFHACVLQLPFHQQVWKNPT
                                                                                                                                                                             Meyerson, M., Counter, C.M., Eaton, E.N., Ellisen, L.W., Steiner, P., Caddle, S.D., Ziaugra, L., Beijersbergen, R.L., Davidoff, M.J., Liu, Q., Bacchetti, S., Haber, D.A. and Weinberg, R.A. hEST2, the putative human telomerase catalytic subunit gene, is up-regulated in tumor cells and during immortalization (cell 90 (4), 785-795 (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FFLRVISDTASLCYSILKAKNAGMSLGAKGAAGPLPSEAVQWLCHQAFLLKLTRHRVT
YVPLLGSLRTAQTQLSRKLPGTTLTALEAAANPALPSDFKTILD"
1361 c 1277 g 715 t
                                                                                                                                                                                                                                                                                                                                                                                               Steiner, P.,
, M.J., Liu, Q.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                           Cadele, S.D., Steiner, P., Meyerson, M., Steiner, P., Meyerson, M., Counter, C.M., Eaton, E.N., Ellisen, L.W., Steiner, P., Cadele, S.D., Ziaugra, L., Beijersbergen, R.L., Davidoff, M.J., Liu, Bacchetti, S., Haber, D.A. and Weinberg, R.A.

Direct Submission
Submitted (11-AUG-1997) Whitehead Institute for Biomedical Research, Massachusetts Institute of Technology, Nine Cambridge Center, Cambridge, MA 02142, USA
                                                                            Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 132 ACGTTCGTGCGCCCTGGGGCCCCAGGGCTGGCGGTGCAGCGCGGGGACCCGGCG 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        72 CGCTGCCGAGCCGTGCGCTCCTGCTGCGCAGCTACCGCGAGGTGCTGCCGCTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="member of reverse transcriptase class"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 4027;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Telomeres
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 3770; DB 27;
Pred. No. 0.00e+00;
0; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="5"
1. 4027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="human Ever Shorter
/gene="hEST2"
57. .3455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="hEST2"
                                                                                                                                                        4027)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 99.3%;
Best Local Similarity 99.9%;
Matches 3773; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .4027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .345
                                                                                                                                                        (bases 1 to
                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        674
                                                                                                                               Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                           MEDLINE
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                   AUTHORS
KEYWORDS
SOURCE
                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
```

```
1162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1151
                              262
                                                                311
                                                                                               322
                                                                                                                                                                                            431
                                                                                                                                                                                                                                                                                                                                                                                                                                                           671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           982
251
                                                                                                                               371
                                                                                                                                                               382
                                                                                                                                                                                                                              442
                                                                                                                                                                                                                                                               491
                                                                                                                                                                                                                                                                                             502
                                                                                                                                                                                                                                                                                                                             551
                                                                                                                                                                                                                                                                                                                                                              562
                                                                                                                                                                                                                                                                                                                                                                                              611
                                                                                                                                                                                                                                                                                                                                                                                                                             622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCGGCCTGCCCAGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TACTGGCAAATGCGGCCCCTGTTTCTGGACTGCTTGGGAACCACGCGCAGTGCCCCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           743 GGCAGTGCCAGCCGAAGTCTGCCGTTGCCCAAGAGGCCCAGGCGTGGCGCTGCCCTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTCCCCCGGTGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1043 GCCGAGACCAAGCACTCCTCTACTCCTCAGGCGACAAGGAGCAGCAGCAGCGGCCCTCCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCGCCTGCCCCAGCGC
                 CCCGCCGCCCCCTTCCGCCAGGTGTCCTGCCTGAAGGAGCTGGTGGCCCGAGTGCTG
                                                                                 CCCCCGCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGGCCTGGAACCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCCCCGCCACACACTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGGCCTGGAACCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            672 AGCGTCAGGGAGGCCGGGGTCCCCTGGGCCTGCCAGCCCCGGGTGCGAGGAGGCGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCAGTGCCAGCCGAAGTCTGCCGTTGCCCAAGAGGCCCAGGCGTGGCGCTGCCCTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGGAGCGGACGCCCGTTGGGCAGGGGTCCTGGGCCCACCCGGGCAGGACGCGTGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGTGACCGTGGTTTCTGTGTGTGTGTCACCTGCCAGACCCGCCGAGAGAGCCACCTCTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGGGTGCGCTCTCTGGCACGCGCCACTCCCATCCGTGGGCCGCCAGCACCACGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCGGCCCTCCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTACTCAGCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGGAGACCATCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTTTCCGCGCGCTGGTGCCCAGTGCCTGGTGCGTGCCTGGGACGCACGGCCGCCC
                                                                                                                                                                                                                                383 GGGGCCCGCGGGGGCCCCCCCGAGGCCTTCACCACCAGCGTGCGCAGCTACCTGCCCAAC
                                                                                                                                                                                                                                                                                                                                                                                              552 recectraccagererecegecececretaccageresecretaccagerecages
                                                                                                                               CAGAGGCTGTGCGAGCGCGCGCGAAGAACGTGCTGGCCTTCGGCTTCGCGCTGCTGGAC
                                                                                                                                                                                                GGGGCCCGCGGGGCCCCCCGAGGCCTTCACCACCAGCGTGCGCAGCTACCTGCCCAAC
                                                                                                                                                                                                                                                                GACGACGTGCTGGTTCACCTGCTGGCACGCTGCGCGCGCTCTTTGTGCTGGTGGCTCCCAGC
```

οy	1223	TACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCAGTGCCCCTAC 1282	ć	Ę
q	1272	SCTCCTCAAGACGCACTGCCGCTGCGAGCTGCGGTCACCCCAGCAGCCGGT	<b>Q</b>	7
οy	1283		ΟŸ	2363 TTGACAG
g	1332	TGTGCCCGGGAGAAGCCCCCAGGGCTCTGTGGCGGCCCCCGAGGAGGAGGACACAGACCCC 1391	qa	2412 CTGAGGGA
ŏ	1343	TGTGCCCGGGAGAAGCCCCAGGGCTCTGTGGCGCCCCCGAGGAGGAGGACACAGACCCC 1402	λo i	423 C1
g	1392	CGTCGCCTGGTGCAGCTGCTCCCCCAGCACAGCCCCTGGCAGGTGTACGGCTTCGTG 1451	g	2472 TTCGACGI
δ	1403	4	δò.	483
g	1452	CGGGCCTGCCTGCTGGTGCCCCCAGGCCTCTGGGGCTCCAGGCACAACGAACG	<u>a</u>	533
οy	1463	CGGGCCTGCCTGCCGGCTGGTGCCCCCAGGCTCTGGGGCTCCAGGCACAACGAACG	δŏ.	m (
Dp	1512	CGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAAGGTCTCGCTG 1571	අ (	2592 TACGGCGP
δ	1523	CGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAAGCTCTCGCTG 1582	Š	2 5
g	1572	CAGGAGCTGACGTGGAAGATGAGCGTGCGGGCTGGCTTGGCTGCGCAGGAGCCCAGGG 1631	3 8	
ογ	1583	CAGGAGCTGACGTGGAAGATGAGCGTGCGGGACTGCGTTGGCTGCGCGGGGGCCCAGGG 1642	S 6	
g d	1632	GTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGAGATCCTGGCCAAGTTCCTG 1691	ογ	2723 ACCCIGGI
Š	1043	'GIGITCCGGCCGCAGAGCACCGICIGCGIGAGAGATCCIGGCCAAGIICCIG I/0	qq	2772 AACTTCC
<u>අ</u> ද	1692	<b>6</b>	. Qy	1111111 2783 AACTICCC
3 8	1763	Tenteneteriorical Cercical Control Critical International Control Cont	QD	2832 GGCCTAI
g à	1763	ACCACITICAAAASAACASGCICITITICIAACSGASASISITITITITITITITITITITITITITITITITIT	ογ	2843 GGCCTATI
3 6	1812		qa	2892 TACTCCAG
ò	1823	88	Qy	2903 TACTCCA
q	1872	AGCATCGGGAAGCCAGGCCCGCCTGCTGACGTCCAGACTCCGCTTCATCCC 193	qa	2952 GCTGGGAG
λŏ	1883	94	Οy	2963 GCTGGG
e B	1932	SACGGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGGAGCCAGAACGTTC 199	q	3012 TTTCTGGA
δ	1943	8	Qy	3023 TTTCTGG
' සි	1992	205	Οp	3072 CIGCIGCA
ογ	2003		Oy.	83
В	2052		q	3132 TGGAAGAP
ò	2063		δλ i	43 T
qq	2112		a	3192 ATCCTGAR
δŷ	2123	ATCCACAGGGCCTGGCGCACCTTCGTGCTGCGGGCCCAGGACCCGCCGCCTGAG 2182	Ολ	m
g	2112		අධ ව	3252 CCCTCCGF
οy	2183	CIGIACITIGICAAGGTGGATGTGACGGCGCGTACGACCATCCCCCAGGACAGGCTC 2242	Š 7	263
q	2232		<b>Q</b>	7
ò	2243	ACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACACGTACTGCGTGCG	y g	m (
q	2292	GIGGICCAGAAGGCCGCCCAIGGGCACGICCGCAAGGCCTICAAGAGCCACGICICIACC 2351	3 6	98
δ	2303	GTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCCTTCAAGAGCCACGTCT	7	

TICCCTGGTGCGGCCTGCTGCTGGTACCCGGACCTGGAGGTGCCAAGCGACTCCCTGGTGCAGGCGACGTGCTGGTGCTGGTGCTGGTGCTGGATACCCGGACCTGGAGGTGCAGGCGAC AAGGCCGTGCAGTGGCTGTGCCACCAAGCATTCCTGCTCAAGCTGACTCGACAC ACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTGCAGGAGACCAGCCCG CCTGTAGAAGACGAGGCCCTGGGTGGCACGGCTTTTGTTCAGATGCCGGCCCAC AACCCCACATTTTTCTGCGGGTCATCTCTGACACGGCCTCCCTGTGCTACTCC **ACTATGCCCGGACCTCCATCAGAGCCAGTCTCACCTTCAACCGCGGGCTTCAAG** GGAACATGCGTCGCAAACTCTTTGGGGTCTTGCGGCTGAAGTGTCACAGCCTG 2AGGCGTACAGGTTTCACGCATGTGTGCTGCAGCTCCCATTTCATCAGCAAGTT FICTICCTACGCTTCATGTGCCACCACGCCGTGCGCCATCAGGGGCAAGTCCTAC ACATGGAGAACAAGCTGTTTGCGGGGATTCGGCGGGACGGGCTGCTCCTGCGT SATTIGCAGGIGAACAGCCICCAGACGGIGIGCACCAACAICIACAAGAICCIC GCCAGGGGATCCCGCAGGGCTCCATCCTCTCCACGCTGCTCTGCAGCCTGTGC

9

```
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Counter, C.M., Meyerson, M., Eaton, E.N., Ellisen, L.W., Caddle, S.D.,
Haber, D. and Weinberg, R.A.
Haber, D. and Weinberg, R.A.
Direct Submission
L. Submitted (20-JAN-1998) Whitehead Institute, 9 Cambridge Center,
Cambridge, MA 02142, USA
L. Cambridge, MA 02142, USA
L. 8960
/organism="synthetic construct"
//db_xref="taxon:32630"
//db_xref="taxon:32630"
//dc_ref="mammalian expression vector; see GenBank Accession Number U47120"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="telomerase catalytic subunit"
/db_xref="PID:93023055"
/translation="MPRAPRCRAVRSLLRSHYREVLPLATFVRRLGPQGWRLVQRGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            see GenBank Accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              artificial sequence.

1 (bases 1 to 8960)

2 (counter,C.M., Meyerson,M., Eaton,E.N., Ellisen,L.W., Caddle,S.D.,
Haber,D.A. and Weinberg,R.A.
Telomerase activity is restored in human cells by ectopic
expression of hTRRT (hEST2), the catalytic subunit of telomerase
Oncogene 16 (9), 1217-1222 (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                       Synthetic construct human telomerase catalytic subunit (hTERI/hESI2) mRNA and 3' Influenza A hemagglutinin tag, complete
                                                                                             3562
                                                                                                                                                                                             3671
                                                                                                                                                                                                                                                                           3491
                                                                                                                                                             3563 CCCGCACCGCTGGGAGTCTGAGGCCTGAGTGTTTGGCCGAGGCCTGCATGTCCGGC 3622
                                                                                                                                                                                                             3623 TGAAGGCTGAGTGTCCGGCTGAGGCCTGAGGCGTGAGGCCTAAGGCTTCAG 3682
                                                                                                                                                                                                                                                            3672 CACACCTGCCGTCTTCACTTCCCCACAGGCTGGCGCTCGGCTCCACCCCAGGGCCAGGTT 3731
                                                               3551
                                                                                                                                3611
                                                                                                                                                                                                                                                                                                                                                                                                                        05-APR-1998
                                                                                                                                                                                                                                                                                                                                           3743 TICCTCACCAGGAGCCCGGCTICCACTCCCCACATAGGAATAGTCCATCCCTGAT 3798
                                                                                                                                                                                                                                                                                                                        3732 ITCCICACCAGGAGCCCGGCTICCACTCCCCACATAGGAATAGTCCATCCCCAGAI 3787
                                                                            3443 GACTICAAGACCAICCIGGACTGAIGGCCACCCGCCCACAGCCAGGCCGAGAGCAGACAC
                                                                                                                                CCCGCACCGCTGGGAGTCTGAGGCCTGAGTGTTTTGGCCGAGGCCTGCATGTCCGGC
                                                                                                                                                                                              TGAAGGCTGAGTGTCCGGCTGAGGCCTGAGCGAGTGTCCAGCCAAGGGCTGAGTGTCCAG
                                                                 /organism="Cloning vector pcI-neo"
/db_xref="taxon:45772"
1102. .4542
/note=-telomerase catalytic subunit hTERT/hEST2
/organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                              1147. .4605
/note="telomerase/reverse transcriptase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="hTERT/hEST2"
1147. .4605
                                                                                                                                                                                                                                                                                                                                                                                                                         DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /chromosome="5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .33"
                                                                                                                                                                                                                                                                                                                                                                                                                      8960 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    synthetic construct
synthetic construct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /map="5p15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sequence.
AF043739
g3023054
                                                                                                                                                                                                                                                                                                                                                                                                                   AF043739
                                                                                                                                                                                                                                                                                                                                                                                                       ٣
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
 3432
                                                                                                                               3552
                                                                                                                                                                                             3612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE
REFERENCE
                                                             3492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                     셤
合
                                                                                                                           셤
                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                          ò
                                 ö
                                                             셤
                                                                                             ò
                                                                                                                                                             ò
                                                                                                                                                                                                                         ò
```

```
LUDGARGESTER IT SYESTICH VIOLAGESCHRRIGGERANNHSVRERGEDE 
LUDGARGESTER IT SYESTICH VIOLAGESCHRRIGGERANNHSVRERGEVENE 
LUDGARGESTELEGERPLYGGRED PROGGESWAHFORT ROPPOLAGIEN 
ROARESTELEGGTRESHESVORQHHAGEPSTERREPRODTFOR PPYVAETIRITYS 
SCHEDLER SETLEGSTRESHESVORQHHAGEPSTERREPRODTFOR PPYVAETIRITYS 
SCHEDLEN RESTLEGSTRESHESTGAREN LYGET BELGGREWHYGET PROGREWOMRPL 
FLELIGNHAQCPYGVLLKTHCPLRAAVT PAAGVCAREKPOGSVAAPEEEDTDPRRLVQ 
LIRQHSSPMOVYGFVRACLERLVPPGLWGSRHNERRETRNTRKF ISLGKHAKLSLQEL 
TWKMSVRGCAMLRRSPGVGCVPAAEHRLEREILAKFLHWIMSVVVVELLRSFFVVTET 
TFOKUNLEFYRKSVWSKLGSIGIROHLKRVOVIREELSAREDFOLFSFRYT 
FROGLIR PIVMDYVVGARTFRREKRAERLTSRVKALFSVLNYERARRPGLLGASVLG 
LDDIHRAMFTVLNYRRAOPPPELYFYKVOVTGAYDTIPODRICHSPYEDRAL 
NRYAAVVORAAHGHVRAFRREKRAERLTSRVKALFSVLNYERARRPGLLGASVLG 
LDDIHRAMFTVLNYRRAOPPPELYFYKVOVTGAYDTIPODRICHSPYEDRAL 
RRDGLLRAUDDFLLYTPHLTHAKTFRTRYGYPVALLOGSSSL 
NRASSGLFDYFLRFWCHAFNHYRREKSYTUNFOVOT POOBLIFSPLRDAVIEGSSSL 
NRASSGLFDYFLRFWCHAFNHYRREKSYTLVRGVPSTALCSLCYGDMENKLFAG 
IRRDGLLLRUDDFLLYTPHLTHAKTFLRTLYRGVYRYNNFFYEDEAL 
GGTAFVOMPAHGLEPWCGLLLDTTTLEVGSSSYSTYRTS IRRACHNERR 
KLFCYLRLKCHSLFDLLQVYNSLQTYCTNIY XILLLQAYRHACH 
FFLRYISDTASLCYS ILKAKNAGMSLGARGARGPLPSERAVOMICHQAFLLKITRRYT
                                                                                                                                                                                                                                                                                                                                                                                                                                    YVPLLGSLRTAQTQLSRKLPGTTLTALEAAANPALPSDFKTILDYPYDVPDYAGYPYD
AAFRALVAQCLVCVPWDARPPPAAPSFRQVSCLKELVARVLQRLCERGAKNVLAFGFA
LLDGARGGPPEAFTTSVRSYLPNTVTDALRGSGAWGLLLRRVGDDVLVHLLARCALFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4543. .4605
/note="engineered based on the epitope for the anti-influenza virus hemagglutinin monoclonal antibody 12C45; similar to part of the Influenza A hemaglutinin gene sequence in GenBank Accession Number M29257"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1101 CGTCCTGCTGCTGCGCAGTGGGAAGCCCTGGCCCGGGCACCCCCGCGATGCCGCGCGCTCC 1160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCAGCCACTACCGCGAGGTGCTGCCGCTGGC 1220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             22 CGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCCCGGGATGCCGCGGGGCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGGGCCCGCGGGGGCCCCCCGAGGCCTTCACCACCAGCGTGCGCAGCTACCTGCCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGGGGCCCGCGGGGGCCCCCCCCGAGCCTTCACCACCAGCGTGCGCACTACCTGCCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGACGACGTGCTGGTTCACCTGCTGCACGCTGCGCGCTCTTTGTGCTGGTGGCTCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 82 CCGCTGCCGAGCCGTGCGTTCCCTGCTGCGCAGCCACTACCGCGAGGTGCTGCCGCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGACGACGACGTGCTTCACCTGCTGCACGCTGCGCGCTTTTGTGCTGCTGGTGCTCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCCCGCCGCCCCTCCTTCCGCCAGGTGTCCTGCCTGAAGGAGCTGGTGGCCCCGAGTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCAGAGGCTGTGCGAGCGCGCGCGCGAAGAACGTGCTGGCCTTCGGCTTCGCGCTGCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 8960;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 3439; DB 31;
Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="synthetic construct"
/db_xref="taxon:32630"
2551 c 2484 g 2038 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2484 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           90.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                               VPDYAG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1886 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches 3441;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        562
```

### ##################################	נככפכ
1820 741 1880 801 1940 961 2000 921 2060 981 2120 1041 2180 1101 2240 1161 2360 1161 2420 1341 2420 1401 2560 1521 260 1521 260 161 161 2720 1531 260 161 161 2720 161 161 161	CCCGCCACGCTAGTGC
741 1880 801 1940 861 2000 921 2000 921 2120 1101 2240 11101 2240 1161 2350 1341 2480 1401 2551 2660 1581 2720 1641	CGTCAGGGAGGCCGGGGTC
1880 801 1940 861 2000 921 2060 981 2120 1041 2180 1101 2240 1161 2360 1161 2420 1341 2480 1401 2560 1581 2600 1581 2600 1581 2600 1581 2720 1581	GGTCAGGGAGGCCGGGGTCC
2000 961 2000 921 2000 981 2120 1101 2240 1161 2420 1221 2480 1161 2480 1401 2560 1581 2600 1581 2600 1581 2720	SCAGTGCCAGCCGAAGTCTGC
861 2000 921 2060 981 2120 1104 2180 1101 2240 1221 2300 1121 2420 1401 2420 1401 2540 1401 2560 1581 2660 1581 2720 1641	GGAGCGGACGCCGTTGGGCA
2000 921 2060 981 2120 11041 2180 11101 2240 1281 2360 1281 2420 1401 2480 1401 2540 161 2560 1581 2720 1641	GGAGGGACGCCGTTGGGCA
2060 981 2120 1041 2180 1101 2240 1221 2360 1281 2420 1281 2420 1341 2420 1341 2460 1401 2540 1401 2560 1521 2660 1581 2720 1581 2720	STGACCGTGGTTTCTGTGTGTGTC 
2120 1041 2180 1101 2240 1151 2300 1221 2420 1341 2420 1401 2420 1401 2420 1401 2420 1401 2420 1401 2420 1401 2420 1401 2420 1401 2420 1401 2600 1521 2600 1521 2600 1521 2600 1521 2720 1641	AGGTGCGCTCTCTGGCACGCGC
2120 1041 2180 1101 2240 1251 2350 1251 2450 1341 2480 1401 2560 151 2560 1521 2660 1581 2720 1581 2720	NGGGTGCGCTCTCTGGCACGCGC
2180 1101 2240 1251 2300 1221 2360 1281 2420 1341 2480 1401 2560 1521 2660 1581 2720 1641 2780	SCCCCCATCGCGGCCACACCGCGGCCACACACACACACACA
2240 1161 2300 1221 2350 1281 2420 1341 2420 1401 2540 1401 2550 1521 2660 1581 2720 1581 2720	CGAGACCAAGCACTTCCTCTAC
1161 2300 1221 2360 1281 2420 1401 2540 161 2600 1521 2660 1581 2720 1641	ACTCAGCTCTCTGAGGCCCAGG
1221 2360 1281 2420 1341 2480 1401 2540 1401 2600 1521 2600 1521 2600 1581 2720 1641	GGGTTCCAGGCCCTGGATGCCAC
2360 1281 2420 1341 2480 1401 2540 1461 2660 1521 2660 1581 2720 1641 2780	GGGTTCCAGGCCCTGGATGCCAG
2420 1341 2480 1401 2540 1461 2600 1521 2660 1581 2720 1641 2780	ACTGGCAAATGCGGCCCCTGTTTC 
2480 1401 2540 1461 2600 1521 2660 1581 2720 1641 2780	GGTGCTCCTCAAGACGCACTGCC 
1401 2540 1461 2600 1521 2660 1581 2720 1641 2780	#TGCCCGGGAGAAGCCCCAGGGCT
2540 2600 1521 2660 1581 2720 1641 2780	T GCCCTGGTGC & GCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTG
2600 1521 2660 1581 2720 1641 2780	TCCCTGGTGCAGCTGCTCCGCC
1521 2660 1581 2720 1641 2780	366CTGCCTGCGCCGGCTGGTGC
2660 1581 2720 1641 2780	GGCCTGCCTGCCCGGCTGGTGC
2720 1641 2780 1701	SCTTCCTCAGGAACACCAAGAAGT
1641 2780 1701	GGAGCTGACGTGGAAGATGAGC
2780	GGAGCTGACGTGGAAGATGAGCC
1701	TGGCTGTGTTCCGGCCGCAGAGC
	TGGCTGTGTTCCGGCCGCAGAGC

61 GAACTICCCIGIAGAAGACGAGGCCCIGGGIGGCACGGCTITIGIICAGAIGCCGGCCCA 3920 TATCCACAGGGCCTGGCGCACCTTCGTGCTGCGGGCCCCAGGACCCGCCGCCTGA CGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCTTCCTCCACGCTGCTGCAGCCTGTG **AAGCATTGGAATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGGAGCTGTCGGAAGCAGA** CAAGCCTGACGGCCGGTTGTGAACATGGACTACGTCGTGGGAGCCAGAACGTT CCGCAGAGAAAAGAGGCCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGTTCAGCGTGCT GCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGACACCATCCCCCAGGACAGGCT GCTGAGGGATGCCGTCGTCATCGAGCAGAGCTCCTCCTGCATGAGGCCAGCAGTGGCCCT CTACGGCGACATGGAGAACAAGCTGTTTGCGGGGGATTCGGCGGGGACGGGCTGCTGCG GACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGTGAACTTGCGGAAGACAGTGGT GGTCAGGCAGCATCGGGAAGCCAGGCCCGCCCTGCTGACGTCCAGACTCCGCTTCATCCC 

셤

ð

셤

ð

ö 셤 õ 음 ò . 쉽 à 윱 ò

```
LUNPSCAYOVGSPLYQLATTINFESSASYRPTRPVGRAMILLSRYGDDLLYTLAHGALYL
LUNPSCAYOVGSPLYQLCATTINFESSASYRPTRPVGRNFTNLRFLQQIKSSRQE
ARRIDALPSRGYRKHLSLTSSYSPSAKKARCYPPRPREGPHRQVLPPFGSKGWVPSP
ARSDEVPTARENCLSSKGKWYPSDLSGSYCCKHRPSSTSLLSPPRQNARPCLPFGSKGWYPSP
ARSDEVPTARENCLSSKGKWYPSDLSGSYCCKHRPSSTSLLSPPRQNARPCLRFTETH
FLYSRGDGQPRLNPSFLLSNLQPNLTGARRUVEIIFLGSRPRTSGPLCRTHRLSRYW
QMRPLFOOLLVWHAECOYVRLRSHCRFTANDQYTDALNTSPPHLADLLRHSSPWQ
VYGFLRACLCKVVSASLWGTRHNERRFYNLWFYTSLSLSCDELMWRKVEDCH
WLRSSPGKDRYPAABHRLERSALLAFFLEWLADTYVYQLLRSFYTTESTFQKRRLFYY
RKSWMSKLOSIGYRQHLERYRLRELSQEEVRHHODTWLAMPLTRFTETPRPWGLRPIV
NMSSYGGTRALGRRKQAQHFTQRLKTLFSRUNYWRLAMPTCRYFTRETPRPWGLRPIV
RKSWMSKLOSIGYRQHLERYRLESGESTRHHODTWLAMPLTRFSTYCTROTAVRR
FVLENYRSLDGTRALGRRKQAQHFTQRLKTLGDSDASALRNSVVIEGSISMNESSSSL
FDFFHFHERHSWYRTGNATGOGTFRGGSSISTLLCSCTGCDBRNKLABEVQRBGLL
LRFYDDFLLYTPHLDQAKTFLSTLYBGYBYGCMINLQKTVVNFPVBFGTLGGAAPYQ
LPAHCLFPWGGLLDTQTLFYGDYSGSISTLLCGSVFKAGKWRKLLSVLR
KGGGLLDTQTLFYGCDYSGYAGTSIKTSLFQSVFKAGKWRKKLLSVLR
LKGHGLLDTQTLFYGTSTLYBGYBYGCMINLQKTVNFPVBFGTLGGAAPYQ
LPAHCLFPWGGLLLDTQTLFYGDYSGYAGTSIKTSLFQSVFKAGKWRKKLLSVLR
SQASCCTAILKVKNFGWITLRAAADPALSTDFQTILLD"

AQKLLCRKLPEATWITLRAAADPALSTDFQTILLD"

ABS C
891 G
782 L
                                              /db_xref="PID:93551847"
//db_xref="PID:93551847"
//translation="WIRAPRCPAVRSLLRSRYREWPLATFVRRLGPEGRRLVQPGDP
KIYRTLVAQCLVCMHWGSQPPPADLSFHQVSSLKELVARVVQRLCERNERNVLAFGFE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTGGTGCCCCCCAGCTGTGCCTACCAGGTGTGTGGGTCTCCCCTGTACCAAATTTGTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCACTCAGGCCCGGCCCCCCCCACGCTAGTGGACCCCCGAAGGCGTCTGGGATGCG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AATTICACIAACCITAGGIICITACAACAGAICAAGAGCAGIAGICGCCAGGAAGCACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 ATGACCCGCGCTCCTCGTTGCCCCGCGGTGCGCTCTCTGCTGCGCGCAGCCGGTACCGGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cecededeccedecerrirececececresisersecresisersecresisersecrise
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGCTCACAGCCTCCACCTGCCGACCTTTCCTTCCACCAGGTGTCATCCCTGAAAGAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITGAGCIGCITAACGAGGCCAGAGGCGGGCCTCCCAIGGCCTICACIAGIAGCGIGCGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361 AGCTACTTGCCCAACACTGTTATTGAGACCCTGCGTGTCAGTGGTGCATGGATGCTACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TIGAGCCGAGTGGGCGACGACCTGCTGGTCTACCTGCTGGCACACTGTGCTCTTTATCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       541 ACCACGGATATCTGGCCCTCTGTGTCCGCTAGTTACAGGCCCACCCGACCCGTGGGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGGCCAGGGTTGTGCAGAGACTCTGCGAGCGCAACGAGAAACGTGCTGTTTTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 1079; DB 28; Length 3369;
Pred. No. 0.00e+00;
0; Mismatches 988; Indels 102;
                   /codon_start=1
/product="telomerase catalytic subunit"
                                                                                                                                                                                                                                                                                                                                                                                                                                                              28.4%; :
larity 68.2%; !
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
Matches 2343; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         601
 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       οţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Martin-Rivera,L., Herrera,E. and Blasco,M.A.
Martin-Rivera,L., Herrera,E. and Blasco,M.A.
Martin-Rivera,L., Herrera,E. and Blasco,M.A.
Birect Submission
Biotechnology, Cantoblanco, Madrid 28049, Spain
Location/Qualifiers
1. 3369
/organism="Mus musculus"
/db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                             4280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                4340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4400
                                                                                                                                                                                                                                                         4160
                                                                                                                                                                                                                                                                                                                           4220
                                                                                                                                                                                                                                                                                                                                                             3141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and
                                                                                   2901
                                                                                                                   CIACTCCAGCTATGCCCGGACCTCCATCAGAGCCAGTCTCACCTTCAACCGCGGCTTCAA 4040
                                                                                                                                                                                                                                                                        3261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 09-SEP-1998 complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
1 (bases I to 3369)
Martin-Rivera,L., Herrera,E., Albar,J.P. and Blasco,M.A.
Expression of mouse telomerase catalytic subunit in embryos a adult tissues
Proc. (Natl. Acad. Sci. U.S.A. 95 (18), 10471-10476 (1998)
CTACTCCAGCTATGCCCGGACCTCCATCAGAGCCAGTCTCACCTTCAACCGCGCGCTTCAA
                                                                                                                                                                                    CCGTGTCACCTACGTGCCACTCTGGGGGTCACTCAGGACAGCCCAGACGCAGGTGAGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGTGTCACCTACGTGCCACTCCTGGGGTCACTCAGGACAGCCCAGACGCAGCGTGG
                                                                                                                                                                                                                                                        GTTTCTGGATTTGCAGGTGAACAGCCTCCAGACGGTGTGCACCAACATCTACAAGATCCT
                                                                                                                                                                                                                                                                                                                                                                                             TTGGAAGAACCCCACATTTTTCCTGCGCGTCATCTCTGACACGGCCTCCCCTCTGCTACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                CATCCTGAAAGCCCAAGAACGCAGGGATGTCGCTGGGGGCCCAAGGGCGCGCCGGCCCTCT
                                                                                                                                                                                                                                                                                                                           CCTGCTGCAGGCGTACAGGTTTCACGCATGTGTGCTGCAGCTCCCATTTCATCAGCAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ROD
subunit mRNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          mRNA
catalytic :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3369 bp
telomerase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGACTTCAAGACCATCCTGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mus musculus
AF073311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Proc. Nat
98393668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AF073311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          93551846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               house
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3442
                                                                                                                     3981
                                                                                                                                                    2902
                                                                                                                                                                                                                                                                                                                         4161
                                                                                                                                                                                                                                                                                                                                                           3082
                                                                                                                                                                                                                                                                                                                                                                                           4221
                                                                                                                                                                                                                                                                                                                                                                                                                             3142
                                                                                                                                                                                                                                                                                                                                                                                                                                                            4281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
JOURNAL
               2782
                                                                                                                                                                                                                      2962
                                                                                                                                                                                                                                                        4101
                                                                                                                                                                                                                                                                                         3022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
TITLE
                                                                                                                                                                                    4041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
LOCUS
```

g

a

ò

ò

윱 ò ద ò g

9

9 Gaps

180

247

240

307 300 367 360 420

427

SOURCE

ö

487

480 547 607 900 999

= =

=

.rge

AACGGGCCTGGAACCATAGCGTCAGGGAGGCCGGG 700	AAACCCTGGCCTTGCCATCTCGAGGTACAAGAGGCATCTGAGCTCACCAGTACAAGT 720 	GTGCCTTCAGCTAAGAAGGCCAGATGCTATCCTGTCCCGAGAGTGGAGGAGCCCCAC 780				TCACCACCCGGCAAAATGCCTTTCAGCTCAGGCCATTTATTGAGACCAGACATTTCCTT 1008	TACTCCAGGGAGATGGCCAAGAGCGTCTAAACCCCTCATTCCTACTCAGCAACCTCCAG 1068 	CCTAACTIGACTGGGGCCAGGAGACTGGTGGAGATCATCTTCTGGGCTCAAGGCCTAGG 1128 	ACATCAGGACCACTCTGCAGGACACGTCTATCGCGTCGATACTGGCAGATGCGGCCC 1188	CTGTICCAACAGCIGCIGAACCAIGCAGAGIGCCAAIAIGTCAGACICCICAGGICA 1248 	CATTGCAGGTTTCGAACAACCAACCAACAGGTGACAGATGCCTT1292 	CAGGGCTCTGTGGCGCCCCCGAGGAGGAGCCCCGCACCTCATGGATTTG 1323 CAGGGCTCTGTGGCGCCCCCGAGGAGGAGACACAGACCCCGTCGCCTGGTGCAGCTG 1420	CTCCGCCTGCAGCAGCAGTCCCTGGCAGGTATATGGTTTTCTTCGGGCCTGTCTCTGCAAG 1383	GIGGIGICTGCIAGICICIGGGGIACCAGGCACAAIGAGCGCCGCTICITIAAGAACTIA 1443 	AAGAAGTICATCICGTIGGGGAAATACGGCAAGCTATCACIGCAGGAACIGGIGGGAG 1503 	ATGAAAGTAGAGGATTGCCACTGGCTCCGGGGAAGGACCGTGTCCCCGCT 1563 	GCAGAGCACCGTCTGAGGGAGGGATCCTGGCTACGTTCTGGCTGATGGACACA 1623 	TACGTGGTACAGCTGCTTAGGTCATTCTTTACATCACAGAGCACATTCCAGAAGAAC 1683 
99	661	721	781	841	901	949	1009	1069	1129	1189	1249	1293	1324	1384	1444	1504	1564	1624
Οŷ	d V	g S	g b	g &	g 6	g &	g ç	oy Oy	g V	oy Oy	g &	g S	oy.	95 O	g b	g Q	g &	g &

2103 1900 1960 1923 2020 1983 2080 2043 2140 2200 21.63 2260 2223 2317 2283 2377 2343 2431 2403 2463 2551 2523 2611 2583 2671 2643 2731 2703 2763 AGGCTCTTCTTCTACCGTAAGAGTGTGTGGAGCAAGCTGCAGAGCATTGGAGTCAGGCAA .1743 2491 2851 GCCCATGGGCACGCAGGCCTTCAAGAGCCACGTCTCTACTTGACAGACCTCCAG TCCGTTGTCATCGAGCAGCATCTCTATGAATGAGGAGCAGCAGCAGCTGTTTGACTTC TTCCTGCACTTCCTGCGTCACAGTGTCGTAAAGATTGGTGACAGGTGCTATACGCAGTGC CACCTTGAGAGAGTGCGGCTACGGGAGCTGTCACAAGAGGAGGTCAGGCATCACCAGGAC ACCTGGCTAGCCATGCCCATCTGCAGACTGCGCTTCATCCCCAAGCCCAACGGCCTGCGG GCCTTTGTGCTGCGTGCTGCTCTGGACCAGACACCCAGGATGTACTTTGTTAAGGCA GAIGIGACCGGGGCCTAIGAIGCCAICCCCCAGGGIAAGCIGGIGGAGGIIGTIGCCAAI ATGATCAGGCACTCGGAGGAGCACGTACTGTATCCGCCAGTATGCAGTGCGGGAGGAGAT 2224 AGCCAAGGCCAAGICCACAAGICCTITAGGAGACAGGICACCACCCICICIGACCICCAG CCATACATGGGCCAGTTCCTTAAGCATCTGCAGGATTCAGATGCCAGTGCACTGAGGAAC 1744 1961 1684 1781 1841 1804 1901 1864 1984 2081 2044 2201 2164 2261 2284 2378 2344 2432 2404 2492 2552 2612 2672 2104 2464 2524 2584 2644 2732 2704 2792 8 名 g 셤 g g g Oy Oy g 8 90 da 쉱 요 쉱 g ò ò ò οy ŏ ŏ ò δ ò ò ò ò 유 ò ò ò

요

à

g

ò ద ò 음

ò

a

ö

g

ò

g

ò

셤

ò

셤

ò

유

à

ð

```
494 CIGIGGICITIAICITCIGGIGCCCCCCAGGIGGGCCTACCAGGIGIGGGGTCICCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTACCAAATTTGTGCCACCACGGATATCTGGCCCTCTGTGTCCGCTAGTTACAGGCCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            592 GTACCAGCTCGGCGCTGCCACTCAGGCCCGGCCCCGCCACACGCTAGTGGACCCCGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        614 CCGACCCGTGGGCAGGAATTTCACTAACCTTAGGTTCTTACAACAGATCAAGAGCAGTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    532 CTGCGCGCTCTTTGTGCTGGTGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                   Match 28.4%;
Local Similarity 68.2%;
les 2351; Conservative
                                                                                                                                                                                                                                                                                                                                                        979 c
                                                                                                                                                                                                                                                                                                                                                         746
                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                  Best_Loca
Matches
                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Chordata; Vertebrata; Mammalla; Eutherla; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

I (bases 1 to 3426)

Greenberg, R.A., Allsopp, R.C., Chin, L., Morin, G.B. and Depinho, R.A.

Expression of mouse telomerase reverse transcriptase during development, differentiation, and proliferation

Oncogene (1998) In press

(bases 1 to 3426)

Greenberg, R.A., Allsopp, R.C., Chin, L., Morin, G.B. and Depinho, R.A.

Submitted (02-MAR-1998) Microbiology and Immunology, Albert
Enstein College of Medicine, 1300 Morris Park Ave., Bronx, NY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3426 bp mRNA ROD 02-APR-1998 telomerase reverse transcriptase mRNA, complete cds.
                                                                                                                                                                                                                                                                                              CTCACATICITCIGGGCATCATCICCAGCCAAGCAICCIGCTGCTAIGCIAICCIGAAG 3123
                                                                                                                                                                            TTGCAGGTGAACAGCCTCCAGACAGTCTGCATCAATATATACAAGATCTTCCTGCTTCAG 3003
                                                                                                                                                                                                                                                                                                                                                                    cM from centromere"
               CCCTGGTGTGGCTTGCTGCTGGACACTCTGGAGGTGTTCTGTGACTACTCAGGT
                                                                         GCCTACAGGTTCCATGCATGTGTGATTCAGCTTCCCTTTGACCAGCGTGTTAGGAAGAAC
                                                                                                                                                                                                                                                                                                                                                      GTCAAGAATCCAGGAATGACACTAAAGGCCTCTGGCTCCT-----TTCCTCCTGAA
                                                        TATGCCCAGACCTCAATTAAGACGAGCCTCCACCTTCCAGAGTGTCTTCAAAGCTGGGAAG
                                                                                                                  ACCATGCGGAACAAGCTCCTGTCGGTCTTGCGGTTGAAGTGTCACGGTCTATTTCTAGAC
                                                                                                                                                                                                                                                                                                                                                                                                               TACAAATGTCTCCTGGGACCTCTGAGGACAGCCCAAAAACTGCTGTGCCGGAAGCTCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGGCGACAATGACCATCCTTAAAGCTGCAGCTGACCCAGCCCTAAGCACAGACTTTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        40; 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1. 3426
/organism="Mus musculus"
/db_xref="taxon:10090"
/chromosome="13"
/map="MGD offset position 40
30. 3398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCATTTTGGACT 3367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mus musculus
AF051911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AF051911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           93005591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10461,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 5
LOCUS
DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
TITLE
                          2852
                                                                                    2912
                                                                                                                 2884
                                                                                                                                                                           2944
                                                                                                                                                                                                        3032
                                                                                                                                                                                                                                                                 3092
                                                                                                                                                                                                                                                                                                                           3152
                                                                                                                                                                                                                                                                                                                                                                                   3212
                                                                                                                                                                                                                                                                                                                                                                                                               3175
                                                                                                                                                                                                                                                                                                                                                                                                                                            3272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
2764
                                                       2824
                                                                                                                                              2972
                                                                                                                                                                                                                                    3004
                                                                                                                                                                                                                                                                                              3064
                                                                                                                                                                                                                                                                                                                                                     3124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
```

```
KITERLYAQULYCHINGERGEPADLSEFHOYSSILELYARVOYCEDERENNIALAFGEE
LINBARGGPPMAFTSSYRSYLPNTVIETLRYSGAWILLISRYGDDLJVYLLAHCALYL
LVPBSCAYQYCGSPPTOINFSVSGAWILLISRYGDDLJVYLLAHCALYL
LVPBSCAYQYCGSPPTOINFSVSGAWILLISRYGDDLJVYLLAHCALYL
LVPBSCAYQYCGSPTYGOLGATTDIWESVSASYRPRYGRRAFULDTSPEGGKSWYPSP
ARSPEVALESRGTKRHISJTSTSVSBAKRARCYPPRYEEGHHRQVLPTPSGKSWYPSP
ARSPEVPTAERDLSSKGKVSDLSLSGSVCKHRPSSTSLLSPPRQNAFQLRPFIETRH
FLYSROGQERLIWPSFLLSNIQPNITGARRIVEITSIGKSRPTGECKTHTHALSRYW
OMRPLFQQLLVNHAECQYYRLLRSHCRFTANQQYTDALNTSPPHLMDLLRLSRYW
OMRPLFQQLLVNHAECQYYRLLRSHCRFTANQQYTDALNTSPPHLMDLLRLSRYW
OMSTSKGCRNRYBAEHRLRERILAFTLENGERWHQDTWLAMPITCRLRFIPKPNGCH
WLRSSPGKORVPAEHRLERPLESGEFWHHQDTWLAMPITCRLRFIPKPNGLFFY
RKSYWSKLØSIGVRQHLERVRIKELSQEFWHHQDTWLAMPITCRLRFIPKPNGLFFY
RKSYWSKLØSIGVRQHLERVRIKELSGEFWHHQDTWLAMPITCRLRFIPKPNGRESSSL
FNERVMSKLOSIGVRQHLERVRIKELSGEFWHHQDTWLAMPITCRLRFIPKPNGR
SQQQYNKSFRRQAQTTSLSGAYDAIPGGKLVEVVANMIRHSESSYL
FDEFLHFLAHSVWIGDERVTQCOIPGSSSLSTLLCSLCFGDMENKLLFSVUR
LRRYDDFLLVTPHLDDAKTFLSTLVHGVPEYGCMINLQKTVVNFPVEFGTIGGAAPYQ
LRRYDDFLLVTPHLDOAKTFLSTLVHGVPEYGCMINLQKTVVNFPVEFGTIGSARYR
AQKLLCTEFWGGLLLDTQTLENFCOYSGYAQTISITGSYFRAGKTMRNITELSVLR
AQKLLCTRLPFRAGTLLATILKARADBALSTPFQTILLG
AACHTERNARSHYNLIKRAAADBALSTDFQTILLD"
AACHTERNARSKOLGPLRT
/product="telomerase reverse transcriptase"
/db_xref="PID:g3005592"
/translation="MTRAPRCPAVRSLLRSRYREVWPLATFVRRLGPEGRRLVQPGDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    74 CAGCCGATACCGGGAGGTGTĠGCCGGTGGCAACCTTTGTGCGGCCCTGGGGCCCGAGGG 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                434 TGCATGGATGCTACTGTTGAGCCGAGTGGGCGACGACCTGCTGGTCTACCTGCTGGCACA 493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     112 CAGCCACTACCGCGAGGTGCTGCCGCTGCCACGTTCGTGCGGCGCCTGGGGCCCCAGGG 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14 CCCGGCCTTGAGCACAATGACCCGCGCTCCTCGTTGCCCCGCGGTGCGCTCTCTGCTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   292 CTGCCTGAAGGAGCTGGTGGCCCGAGTGCTGCGAGGGTGTGTGCGAGGAAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             314 CGTGCTGGCTTTTGGCTTTGAGCTGCTTAACGAGGCCAGAGGCGGGCCTCCCATGGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 134 CAGGCGCTTGTGCAACCCGGGACCCGAAGATCTACCGCACTTTGGTTGCCCAATGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          254 ATCCCTGAAAGAGCTGGTGGCCAGGGTTGTGCAGAGACTCTGCGAGCGCAACGAGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        374 CACTAGTAGCGTGCGTAGCTACTTGCCCCAACACTGTTATTGAGACCCTGCGTGTCAGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 3426;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 1079; DB 28;
Pred. No. 0.00e+00;
0; Mismatches 996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          907 g
```

553 591 613 651 673

														•																	
684	733	744	793	853	864	913	924	961	984	1021	1081	1104	1141	#0TT	1201	1261	1284	1321	1344	33	1404	1396 1464	1456	1524	1516	1584	1576	1644	1636	1696	76
GCGTCTGGGATGCGAACGGGCCTGGAACCATAG	TCGCCAGGAAGCACCGAAACCCCTGGCCTTGCCATCTCCGAGGTACAAAGAGGCATCTGAG	CGTCAGGAAGGCCGGGGTCCCCCTGGGCCTGCCAGCCCCGGGTGCGAGGAGGCGCGGGGG	TCTCACCAGTACAAGTGTGCCTTCAGCTAAGAAGGCCAGATGCTATCCTGTCCCGAGAGT	GGAGGAGGACCCCACAGGCAGGTGCTACCAACCCCATCAGGCAAATCATGGGTGCCAAG	GEAGCGGACGCCCCTTGGGCACGTGGGCCCACCGGGGAGGACGCGGGGAGGACGAGGACGAGGACGAGAGGACGAGAGGACGAGAGGACGAGAGGACGAGAGGACGAGAGGACGAGAGGACGAGAGGACGAGAGGACGAGAGGACGAGAGGACGAGAGGACGAGAGGACGAGAGGACGAGAGGACGAGAGGACGAGAGAAGA	TCCTGCTCGGTCCCCGAGGTGCCTACTGCAGAGAATTTGTCTTCTAAAGGAAAGGT		GTCTGACCTGAGTCTCTGGGTCGGTGTGCTGTAAACACAAGCCCAG		CICCACATCICIGCIGICACCCGCCAAAATGCCTITCAGCTCAGGCCATTATIGA		CGAGACCAGATCCTCTCAGGCGACAAGGAGCAGCTGCGGCCCCCTTCCT	ACTCAGCAACCTCCAGCCTAACTIGACIGGGGCCAGGACIGGTGGAGATCATCTTTCT		GGGCTCAAGGCCTAGGACATCAGGACCACTCTGCAGGACACACCGTCTATCGCGTCGATA	CTGGCAGATGCGGCCCCTGTTCCAACAGCTGGTGAACCATGCAGGTGCCAATATGT	CIGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCAGTGCCCCTACGG	CAGACTCCTCAGGTCACATTGCAGGTTTCGAACAGCAACAACGTGACAGATGCCTT		- CAACACCAC	TGCCCGGGAGAAGCCCCAGGGCTCTGTGGCGGCCCCCCGAGGAGG	GCACCTCATGGATTTGCTCCGCCTGCACAGCAGTCCCTGGCAGGTATATGGTTTTCTTCG	GGCCTGTCTCTGCAAGGTGGTCTCTGCTAGTCTCTGGGGTACCAGGCACAATGAGCGCCG		CITCITIAAGAACITAAAGAAGITCAICICGITGGGGAAAIACGGCAAGCIAICACIGCA		GGAACTGATGTGGAAGATGAAGTAGGGATTGCCACTGGCTCCGCAGCGGGGAA	.0	GGACCGTGTCCCCGCTGCAGAGCACCGTCTGAGGGAGGGA	CTGGCTGATGGACACATACGTGGTACAGCTGCTTAGGTCATTCTTTTACATCACAGAGAG	
652	r 0	080	734	794	802	854	865	914	925	962	1022	1045	1082		1142	1202	1225	1262	1285	32	1345	1337	1397	1465	1457	1525	1517	1585	1577	1637	1705
οχ	අ :	Š	g &	g	ķ	g	ογ	ුසි	ò	g &	Q	ò	g 2	5	g &	g	ò	q	δ	qq	ŏ	oy Oy	q	δý	q	δ	8	ò	g &	g	δ

CCACAGGGCCTGGCGCACCTTCGTGCTGCGGGGCCCAGGACCCGCCGCCCTGAGCT CGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGAAGGCCTTCAAGAGCCATCTTAC CACATTCCAGAAGAACAGGCTCTTCTTCTACCGTAAGAGTGTGTGGGAGCAAGCTGCAGAG CAGGCATCACCAGGACACCTGGCTAGCCATGCCCATCTGCAGACTGCGCTTCATCCCCAA CTACAGGACCTGGCGGCCTTTGTGCTGCGTGCTGCTCTGGACCAGACACCCAGGAT GTACTTTGTTAAGGCAGATGTGACCGGGGCCTATGATGCCATCCCCCAGGGTAAGCTGGT GGAGGTTGTTGCCAATATGATCAGGCACTCGGAGAGCACGTACTGTATCCGCCAGTATGC CCTCTCTGACCTCCAGCCATACATGGGCCAGTTCCTTAAGCATCTGCAGGATTCAGATGC TITACGITITGITGATGACTITCTGITGGTGACGCCTCACTTGGACCAAGCAAAAACCIT CCTCAGCACCCTGGTCCATGGCGTTCCTGAGTATGGGTGCATGATAAACTTGCAGAAGAC AGTGGTGAACTTCCCTGTGGAGCCTGGTACCCTGGGTGGTGCAGCTCCATACCAGCTGCC g & g QY Db g & g Q do Qy 90 Y g O D λ β ò QQ g 셤 g g ò ò ö õ ò οŽ ò

```
Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
Matches 9; Conser
                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              đ
                                                                                                                                                                                                                                                                                                                                                                                                                    Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                              Unknown
                                       51
                                                                                                                                                                                                                                                                                                                                                       I66494
                                                                           Query Match
Best Local Simi
Matches 165;
                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                       BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1055
                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1355
                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                    ò
                                                                                                                                                                           음
                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   homoloy
Unpublished
1 (bases 1 to 201)
Drissi,R. and Cleveland,J.L.
Direct Submission
Submitted (07-0CT-1997) Biochemistry, St jude Children's Research
Hospital, 332 North Leuderdale, Memphis, TN 38105, USA
Location/Qualifiers
2896 GAGCGACTACTCCAGCTATGCCCGGACCTCCATCAGAGCCAGTCTCACCTTCAACCGCGG 2955
                                                                                                               3076 GATCCTCCTGCTGCAGGCGTACAGGTTTCACGCATGTGTGCTGCAGCTCCCATTTCATCA 3135
                                                                                                                                                                                                                                                                                                                 3316 TCGACACCGTGTCACCTACGTGCCACTCCTGGGGTCACTCAGGACAGCCCAGACGCAGGCT 3375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3376 GAGTCGGAAGCTCCCGGGGACGACGACGTGACTGCCCTGGAGGCCGCAGCCAACCCCGGCACT 3435
                                                                                                    CITCAAAGCTGGGAAGACCATGCGGAACAAGCTCCTGTCGGTCTTGCGGTTGAAGTGTCA 2956
                                                                                                                                                  CGGTCTATTTCTAGACTTGCAGGTGAACAGCCTCCAGACAGTCTGCATCATATATACAA 3016
                                                                                                                                                                                                    GAICTICCIGCIICAGGCCIACAGGIICCAIGCAIGIGAGIICAGCIICCCIIIGACCA 3076
                                                                                                                                                                                                                                                                                                     CTATGCTATCCTGAAGGTCAAGAATCCAGGAATGACACTAAAGGCCTCTGGCTCCT---- 3192
                                                                                                                                                                                                                                                                                                                                                                                                      TGCTCATTCTGTCATCTACAAATGTCTCCTGGGACCTCTGAGGACAGCCCAAAAACTGCT 3307
                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTGCCGGAAGCTCCCAGAGGCGACAATGACCATCCTTAAAGCTGCAGCTCAGCCCAGCCCT 3367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ArU29235 201 bp mRNA ROD 12-NOV-1997
Mus musculus telomerase catalytic subunit mRNA, partial cds.
AF029235
92605902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryotae; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
1 (bases 1 to 201)
Drissi, R. and Cleveland, J.L.
Partial sequence of Mus musculus telomerase catalytic subunit
                                                  CTGTGACTACTCAGGTTATGCCCAGACCTCAATTAAGACGAGCCTCACCTTCCAGAGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product-"telomerase catalytic subunit"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1. .201
/organism="Mus musculus"
/db_xref="taxon:10090"
/cell_line="32D.3"
<1. .>201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3368 AAGCACAGACTTTCAGACCATTTTGGACT 3396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3436 GCCCTCAGACTTCAAGACCATCCTGGACT 3464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             house mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  homolog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                         3016
                                                                                                                                                                                                                                                                                                                                                                                                                                                      3308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
TITLE
                                                                                                                           2956
                                                                                                                                                                                                   3017
                                                                                                                                                                                                                                                    3077
                                                                                                                                                                                                                                                                           3136
                                                                                                                                                                                                                                                                                                                                                                                                      3248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
                                                  2837
                                                                                                  2897
                                                                                                                                                  2957
                                                                                                                                                                                                                                                                                                    3137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                 g
                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
 셤
                          ò
                                                 셤
                                                                          ò
                                                                                                                           à
                                                                                                                                               a
                                                                                                                                                                          ö
                                                                                                                                                                                                 음
                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                           à
```

```
/db_xref="PID:g2605903"
/translation="PFYVTESTFQKNRLFFYRKSVWSKLQSIGVRQHLERVRLRELSQ
EEVRHHQDTWLAMPICRLRFIPK"
                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1222 CTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCAGTGCCCCTA 1281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCTGGGTTCCAGGCCCTGGATGCCAGGACTCCCCGCAGGTTGCCCCGCCTGCCCAGGG 1221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1745 TICTITIATGICACGGAGACCACGTITCAAAGAACAGGCTCTITITCTACCGGAAGAGT 1804
                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23-DEC-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                  GTGTGGAGCAAGCTGCAGAGCATTGGAGTCAGGCAACACCTTGAGAGAGTGCGGCTACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             982 GGGCCCCCCATCCACATCGCGGCCCACCACGTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1042 CGCCGAGACCAAGCACTICCTCTACTCCTCAGGCGACAAGGAGCAGCTGCGGCCCTCCTIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1805 GTCTGGAGCAAGTTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGTGCAGCTGCGG
                                                                                                                                                                                                                                                                                                                          GAGCTGTCACAAGAGGAGGTCAGGCATCACCAGGACACCTGGCTAGCCATGCCCATCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 TICTITITATGICACGGAGAGCACATICCAGAAGAACAGGCTCTICTICTACCGTAAGAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ó;
                                                                                                                                                ö
                                                                                                             Length 201;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 7218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1.8%; Score 67; DB 21; Length 721
Similarity 2.4%; Pred. No. 5.33e-26;
9; Conservative 211; Mismatches 153; Indels
                                                                                                         Score 129; DB 28; Length 20
Pred. No. 7.48e-73;
0; Mismatches 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 (bases 1 to 7218)
Dorner,F., Schefflinger,F. and Falkner,F.Gunter.
Recombinant fowlpox virus
Patent: US 5670367-A 14 23-SEP-1997;
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          دډ
                                                     ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5670367.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1929
                                                       41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="unknown"
1491 c 1486 g
                                                       ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 14 from patent US
166494
92724471
                                                                                                                                                                                                                                                                                                                                                                                                               1925 AGACTCCGCTTCATCCCCAAG 1945
                                                                                                                                                                                                                                                                                                                                                                                              181 AGACTCCGCTTCATCCCCAAG 201
                                                                                                         3.4%;
larity 82.1%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7218
                                                     54
```

셤 å

```
Kimmerly, W., Bondoc, M., Cheng, J., Connolly, K.S., Gunning, K.M., Davis, C.A., Kadner, K., Miguel, T., Pitluck, S., Pollard, M., Engleski, H., Subramanian, S. and Martin, C.H.

Direct Submission
Submitted (01-AUG-1998) Human Genome Center, DOE Joint Genome Institute, Lawrence Berkeley National Laboratory, MS 74-157, Berkeley, CA 94720, U.S.A.

Sequence submitted by:

DOE Joint Genome Institute.

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                 join(3246. .3410,3721. .3828)
/standard_name="RLF"
/note="65% & 69% protein identity GenPept:U22377"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(7830. .8185)
/standard_name="possible repeat"
/s28. .853.
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /rpt_family="L1"
14175. .14470
/rpt_family="Alu"
complement(14906. .15259)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(10440. .11015)
                                                                                                                                                                                  /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(9740. .9845)
                                                                                                                                                                                                                                                                                  893. .1030
/rpt_family="Alu"
2295. .2438
/rpt_family="Alu"
2818. .2859
/note="(GT)21"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4366. 4661
/rpt_family="Alu"
5327. 5602
/rpt_family="Alu"
6586. 6956
/rpt_family="LI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12365..12645

'Topt_fanly"Alu"

13727..13750

/note="(AC)12"

/rpt_type=tandem

/rpt_unit=AC

13783..14024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /rpt_family-"Alu"
3707. .3728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rpt_family="Alu"
                                                                                                                                                                                                                                                                    /note="LBNL H175"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rpt_family="Alu"
2057. .12085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                    'rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /rpt_type=tandem
/rpt_unit=CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rpt_type=tandem
                                                                                                                                                                                                                                  /clone="119j3"
/chromosome="5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .647. .6684
'note="(CA)19"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3707. .3728
/note="(A)22"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    note="(A)29"
                                                                                                                                                                                                                                                                                                                                                                                                       /rpt_unit=GT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /rpt_unit=A
12365. .1264
                                                                                                                                                                                                                   /map="5q"
                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                        source
                                                 TITLE
JOURNAL
   AUTHORS
                                                                                                                                                     FEATURES
                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AC005369 74371 bp DNA PRI 01-AUG-1998
Homo sapiens chromosome 5, BAC clone 119j3 (LBNL H175), complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1900 TICCCGAIGCTGCCTGACCTCTGCTTCCGACCTCCCGCACCTGCTCTTCAAGTG 1841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2080 CCGCCCCCCTGATTGAGCACGCTGAACAGTGCCTTCACCCTCGAGGTGAGAGCGCTC 2021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2020 GGCCCTCTTTTCTCTGCGGAACGTTCTGGCTCCCACGACGTAGTCCATGTTCACAATCGG 1961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2 (bases I to 74371)
Ricke,D.O.
Comparison Analysis and Annotation with the Sequence Comparison Analysis (SCAN) System
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota, Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 74371)

Kimmerly,W., Bondoc,M., Cheng,J., Connolly,K.S., Gunning,K.M., Kadner,K., Miguel,T., Miller,C., Pilluck,S., Pollard,M., Rojeski,H., Subramanian,S. and Martin,C.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                    23-DEC-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1840 CIGICIGATICCAAIGCITIGCAACTIGCICCAGACACICTICCGGIAGAAAA 1788
                                                                                                                                                                                                                                                                                                                                                                                                                 Length 7218;
                                                                                                                                                                                                                                                                                                                                                                 368 others
                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 1.3%; Score 49; DB 21; Length 721
Best Local Similarity 2.0%; Pred. No. 1.39e-13;
Matches 6; Conservative 165; Mismatches 122; Indels
                                                                                                                                                                                                                                                            Dorner, F., Scheiflinger, F. and Falkner, F. Gunter. Recombinant fowlpox virus
Patent: US 5670367-A 14 23-SEP-1997;
Location/Qualifiers
                                                                                                                    PAT
                                                                                                                                                                                                                                                                                                                                                                 1929 t
                                                                                                                                Sequence 14 from patent US 5670367.
166494
92724471
                                                                                                                                                                                                                                                                                                                                              /organism="unknown"
1944 a 1491 c 1486 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 1 to 74371)
                                                                                                                 7218 bp
                                                                                                                                                                                                                                                 (bases 1 to 7218)
                  1415 YYYYYYYYYYYY 1427
                                       1282 CGGGGTGCTCCTC 1294
                                                                                                                                                                                                                   Unknown.
Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sequence.
AC005369
g3367505
                                                                                                                                                                                                 Unknown.
                                                                                                                 I66494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       human.
                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCUS
                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                JOURNAL
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
REFERENCE
                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
SOURCE
                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
```

g

g a S, g 음

გ

셤 g

ე

```
RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                        STS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ολ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    28987. .29214

/rpt_family="Alu"

join(29485. .29559, 29598. .29779)

10405-1054 identity dbsTs:G14522 (SHGC-11312)"

10495. .29976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(31573. 31724)
/note="GRAIL 2 excellent exon, frame 1"
complement(32159. 32232)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /rpt_type=tandem
/rpt_unit=A
28712. 28930
/rpt_family="MER20"
complement(28769. 28838)
/note="GRALL 2 excellent exon, frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    // Standard_name="A1027942"
// Standard_name="A1027942"
// note="100% identity EST ov84a10.x1"
// complement(30401. .30536)
// note="GRAIL 2 excellent exon, frame /rpt_family="MIR"
'standard_name="possible repeat"
15300. .15613
                                                                                                                                                                                                                                                                                                                                                                                                                                                    standard_name="possible repeat"
3022. .23326
                                                                                         complement(16675, .16977)
/rpt_family="Alu"
complement(16993, .17085)
/rpt_family="MER42"
complement(17678, .18276)
/rpt_family="Alu"
19305, .19583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Complement(24639. .24694)
/rpt_family="MER42"
Complement(25349. .25713)
/rpt_family="Alu"
Complement(25727. .26471)
/rpt_family="Alu"
27191. .27477
                                                                                                                                                                                          /rpt_family="Alu"
complement(22638. .22981)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /rpt_family="Alu"
23473. .23761
/rpt_family="Alu"
23744. .23767
/note="(A)24"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /rpt_family="Alu"
27774. .28057
/rpt_family="Alu"
28040. .28066
/note="(A)27"
                                                                                                                                                                                                                                                                                                                                     /rpt_family="Alu"
22017. .22038
/note="(A)22"
                        /rpt_family="Alu"
16671. .16690
                                                                                                                                                                                                                                                                                                                                                                               rpt_type=tandemrpt_unit=A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   rpt_type=tandemrpt_unit=A
                                                                   'rpt_type=tandem
'rpt_unit=T
                                       6671. .16690
note="(T)20"
             repeat_region
                                        repeat_region
                                                                                                repeat_region
                                                                                                                            repeat_region
                                                                                                                                                    repeat_region
                                                                                                                                                                                repeat_region
                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
```

```
Complement(34021. 34144)

/note="GRAIL 2 excellent exon, frame 2"

complement(35238. 35331)

/note="GRAIL 2 excellent exon, frame 1"

/note="GRAIL 2 excellent exon, frame 1"

/rot_family="Alu"

36901. 37222

/note="100% identity EST ou55c09.x1"

/db_xref="dbsT:AL025011"

36901. 37164

/standard_name="STSG-9983"

/db_xref="dbsTs:C36564"

complement(37595. 33654)

/note="GRAIL 2 excellent exon, frame 0"

complement(37595. 33630. 33935. 40048,40300. 40410,40503. 44567))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Db 15955 CKSSKCWCWSYRMRMKCYSCSYCYCSSGKKYWCRCSMYWYTCYYSYKYYWSMSYCTCTSW 16014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unclassities.

(bases 1 to 215)

Bennett, A., Labavitch, J.M., Powell, A. and Stotz, H.

Plant inhibitors of fungal polygalacturonases and their use to control fungal disease

Patent: US 5569830-A 5 29-OCT-1996;

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       83 HINVSGADSKIVIDSYNASGISSSNGGIDGNRSGADSYGSSKIAMISRNRIGKIANNAVD 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    30-0CT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /standard_name="histidyl-tRNA synthetase"
/standard_name="histidyl-tRNA synthetase"
/note="78%-100% protein identity GenPept:U18937"
complement(38069: .38215)
/note="GRAIL 2 excellent exon, frame 0"
complement(38462: .38578)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 1.0%; Score 37; DB 26; Length 74371; Best Local Similarity 13.8%; Pred. No. 5.37e-06; Matches 12; Conservative 50; Mismatches 25; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 34; DB 21; Length 215;
Pred. No. 3.10e-04;
56; Mismatches 59; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            141 others
/note="GRAIL 2 excellent exon, frame 2" 32388. .32488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26 t
                                                                                                                                                            complement(33670. .33785)
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 5 from patent US 5569830.
128278
91819054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16015 GWRWMWSKGRSWMYASRSGCSCSCSMC 16041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   608 GCCACTCAGGCCCGGCCCCGCCACAC 634
                                        /rpt_family_"MLT1"
32617. 32908
/rpt_family_"Alu"
32977. 33088
/rpt_family_"MLT1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism-"unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Note: remainder of annotations omitted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 0.9%;
Best Local Similarity 12.9%;
Matches 17; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unknown
                     repeat_region
                                                                     repeat_region
                                                                                                                 repeat_region
                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
```

셤

ò

8

```
A Chaese 1 to 74371)

Kimmerly, W., Bondoc, M., Cheng, J., Connolly, K.S., Gunning, K.M., Bavis, C.A., Kadner, K., Miguel, T., Pitluck, S., Pollard, M., Rojeski, H., Subramanian, S. and Martin, C.H.

Direct Submission
Submitted (01-AUG-1998) Human Genome Center, DOE Joint Genome Institute, Lawrence Berkeley National Laboratory, MS 74-157, Berkeley, CA 94720, U.S.A.
Sequence submitted by:
DOE Joint Genome Institute.

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                       /rpt_unit=Gr
join(3246.2)
/standard_name="Ruf"
/hote="65% & 69% protein identity GenPept:U22377"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           standard_name="possible repeat"
258. .8503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(10440. 11015)
/rpt_family="Alu"
(1950. 1725.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /rpt_family="Alu"
970. 9387
/rpt_family="Alu"
complement(9740. 9845)
/rpt_family="MER42"
 Comparison Analysis (SCAN) System
                                                                                                                                                                                                                                 /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /rpt_family="Alu"
complement(7830, .8185)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /rpt_family-"Alu"
5327. 5602
/rpt_family-"Alu"
6586. 6956
/rpt_family-"Ll"
6647. 6684
/note="(CA)19"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3431. .3724
/rpt_family="Alu"
3707. .3728
/note="(A)22"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /rpt_family="Alu"
12057. .12085
/note="(A)29"
                                                                                                                                                                                                                                                                                                                    'note="LBNL H175"
                                                                                                                                                                                                                                                                                                                                    893. .1030
/rpt_family="Alu"
2295. .2438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /rpt_type=tandem
/rpt_unit=AC
13783. .14024
/rpt_family="Li"
                                                                                                                                                                                                                                                                                                                                                                                   /rpt_family="Alu"
2818. .2859
/note="(GT)21"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /rpt_family="Alu"
13727. .13750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                       rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      rpt_type=tandem
                                                                                                                                                                                                                                                                                 /clone="119j3"
/chromosome="5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'note="(AC)12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .12645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   fpt_unit=CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'rpt_unit=A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4366. .4661
                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                      source
               JOURNAL
REFERENCE
AUTHORS
                                                                                               TITLE
JOURNAL
                                                                                                                                                                                                   FEATURES
                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AC005369 74371 bp DNA PRI 01-AUG-1998
Homo sapiens chromosome 5, BAC clone 11933 (LBNL H175), complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1616 AGTCCCGCACGTCATCCACGTCCAGCTCCAGCAGGAGCTTGGCATGCTTCCCCA 1557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unclassified.

1 (bases 1 to 215)

1 (bases 1 to 215)

Bennett, . Labavitch, J.M., Powell, A. and Stotz, H.
Plant inhibitors of fungal polygalacturonases and their use to control fungal disease
Patent: US 5569830-A 5 29-0CT-1996;

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2 (bases 1 to 74371)
Ricke,D.O.
Large Scale Sequence Analysis and Annotation with the Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
Bukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Butheria;
Brimates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 74371)
Kimmerly,W., Bondoc,M., Cheng,J., Connolly,K.S., Gunning,K.M.,
Kadner,K., Miguel,T., Miller,C., Pitluck,S., Pollard,M.,
Rojeski,H., Subramanian,S. and Martin,C.H.
Sequencing of human chromosome 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            126 AMTSRNRTGKTANNAVDSRNMGDASVGSDKNTKKHAKNSADGKVGSKNNGDRNNRYGTGT 185
143 SRNMGDASVGSDKNTKKHAKNSADGKVGSKNNGDRNNRYGTGTKSNVSNNCGGGNKRDVS 202
                                                                       66 YNYGGNNVGAAKTHYYTHTNVSGADSKTVTDSYNASGTSSSNGGTDGNRSGADSYGSSKT 125
                                                                                                                                                                                                                    30-0CT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6 MSSSSVVSRTASCNDKAKKDGNTTSSWTTDCCNRTWGVCDTDTTYRVNNDSGHNKYSSAN 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 35; DB 21; Length 215;
Pred. No. 8.17e-05;
76; Mismatches 95; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        141 others
                                                                                                                                                                                                                    PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26 t
                                                                                                                                                                                                               128278 215 bp DNA
Sequence 5 from patent US 5569830.
128278
91819054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="unknown"
8 c 25 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1436 TGCTGTGCTGGCGGAGC 1420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity 13.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               186 KSNVSNNCGGGNKRDVS 202
                                                                                                                                  251 GCACGCCGCCC 262
                                                                                                               203 SYANNKCCGSSC 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sequence.
AC005369
g3367505
                                                                                                                                                                                                                                                                                                     Unknown
                                                                                                                                                                                                                                                                                                                   Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    . uman.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12
                                                                                                                                                                                                                               DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                   SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                   RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
```

g

셤 S 윱 g

```
misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LOCUS
DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                              STS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (rpt_family="Alu"
(rpt_family="Alu"
)oin(29485. 29559, 29598. .29779)
(rote="95% identity dbsTS:G14522" (SHGC-11312)"
(29495. .29976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /standard_name="A1027942"
/note="100% identity EST ov84a10.x1"
complement(30401. .30536)
/note="GRAIL 2 excellent exon, frame 2"
complement(30682. .30733)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /rpt_type=tandem
/rpt_unit=A
28712. .28930
/rpt_family="MER20"
complement(28769. .28838)
/note="GRAIL 2 excellent exon, frame
14175. .14470
/rpt_family="Alu"
complement(14906. .15259)
/standard_name="possible repeat"
15300. .15613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   standard_name="possible repeat"
3022. .23326
rpt_family="Alu"
3473. .23761
rpt_family="Alu"
3744. .23767
                                                                                                                                          complement(16675. .16977)
/rpt_family="Alu"
complement(16993. .17085)
/rpt_family="MER42"
complement(17678. .18276)
/rpt_family="Alu"
19305. .19583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement(24639. .24694)
/rpt_family="MER42"
complement(25349. .25713)
/rpt_family="Alu"
complement(25727. .26471)
/rpt_family="Alu"
27191. .27477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       22321. . 22457
/rpt_family="Alu"
complement(22638. .22981)
                                                                                                                                                                                                                                                                                                                              .20222)
                                                                                                                                                                                                                                                 /rpt_family="Alu"
19914. 19945
/note="(GTT)8"
/rpt_type=tandem
/rpt_unit=GTTT
/rpt_family="Alu"
21202. 21496
                                                                                                                                                                                                                                                                                                                                                                                 21736. .22035
/rpt_family="Alu"
22017. .22038
/note="(A)22"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27774. .28057
/rpt_family="Alu"
28040. .28066
/note="(A)27"
                                                                      /rpt_family="Alu"
16671. 16690
/note="(T)20"
                                                                                                                                                                                                                                                                                                                                                              rpt_family="Alu"
1736. .22035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       pt_family="Alu"
                                                                                                                     'rpt_type=tandem
'rpt_unit=T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      rpt_type=tandem
rpt_unit=A
                                                                                                                                                                                                                                                                                                                                                                                                                                             pt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .*. .23767
'note="(A)24"
rpt tur
                                                                                                                                                                                                                                                                                                                                                                                                                                                             t_unit=A
                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
   repeat_region
                               repeat_region
                                                            repeat_region
                                                                                         repeat_region
                                                                                                                                                   repeat_region
                                                                                                                                                                               repeat_region
                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_feature
```

```
/codon_start=1
/product="preproprotease leader & prochymosin"
/db_xref="PID:g490656"
/translation="MPHSPVSPAESPAPQPGRPRPVVSRRLEEGGAAVLGALALSASP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DD 15918 KCKCTSTSKCSCMSRSKSKRGWGYRSWKKYRCAMWMTCKSSKCWCWSYRMRMKCYSCSYC 15977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2610 TCGCCGTAGCACACGCTGCAGAGCAGCAGGAAGGGATGGAGGACCCTGCGGGATCCCCTGG 2551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-DEC-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 (bases 1 to 201)
Garvin,R.T. and James,E.
Production of active proteins containing cystine residues
Patent: EP 0222379-A 5 20-MAY-1987;
Cangene Corporation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A10161 201 bp DNA PAT 01-D
Synthetic DNA for preproprotease leader & prochymosin.
A10161
9490655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 34; DB 26; Length 74371;
Pred. No. 3.10e-04;
46; Mismatches 25; Indels 0
                                                                                                                                                                                                             /note="GRAIL 2 excellent exon, frame 2" complement(35238. 35331)
//note="GRAIL 2 excellent exon, frame 1" 36392. 36663
                                              frame 2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Artificial sequences"
,uote="GRAIL 2 excellent exon,
complement(32159, 33232)
/note="GRAIL 2 excellent exon,
33388, 33488
                                                                                                                                                              complement(33670. .33785)
/rpt_family="Alu"
complement(34021. .34144)
                                                                         /rpt_family="MLT1"
35617. .32908
/rpt_family="Alu"
32977. .33088
/rpt_family="MLT1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Db 15978 YCSSGKKYWCRCSMYWYTCYYSYK 16001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2550 CACIGGACGIAGGACTIGCCCCTG 2527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Note: remainder of annotations omitted.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 0.9%;
Best Local Similarity 15.5%;
Matches 13; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           unidentified
unidentified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               unclassified
                                                                repeat_region
                                                                                                 repeat_region
                                                                                                                                 repeat_region
                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                  repeat_region
                                misc_feature
                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
```

```
source
 SOURCE
                                       REFERENCE
AUTHORS
                                                                 TITLE
JOURNAL
                                                                                                                                                           BASE COUNT
                                                                                                       FEATURES
                                                                                                                                                                        ORIGIN
                                                                                                                                                                                                                                                                             c<sub>D</sub>
                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /transl_table=11
/product="preproprotease"
/db_xref="pro;q490197"
/translation="MHSPVSPAESPAPQPGRPRPVVSRRLLEGGAAVLGALALSASP
LTAQAAVRRAAADEPPEWNDFGV"
                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62 CSGTSGTSTCSCGSCGSCTSCTSGAGGGSGGSGCSGCSGTSCTSGGGGCCCTSGCSCTST 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2 TGCCSCACTCSCCSGTSTCSCCSGCSGAGTCSCCSGCSCCSCAGCCSGGSCGSCCSCGSC 61
                                                                                                                             01-DEC-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-DEC-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                              Streptomycetaceae; Streptomyces.

1 (bases 1 to 201)

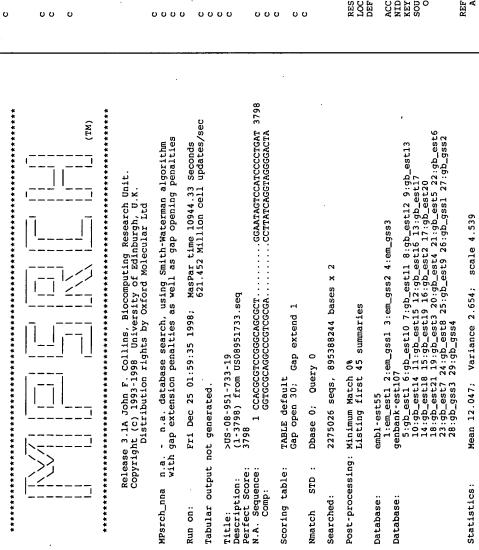
2 (avvin, R.T. and James, E. Production of active proteins containing cystine residues Patent: EP 0222279-A 2 20-MAY-1987;
                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                     Streptomyces griseus
Eubacteria; Firmicutes; Actinomycetes; Streptomycetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A10162 201 bp DNA PAT 01-D
Synthetic DNA for preproprotease leader & prochymosin.
A10162
9489115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 30; DB 21; Length 201;
Pred. No. 5.30e-02;
35; Mismatches 57; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 201;
                                                  DB 21; Length 201;
             46 others
                                                 Score 30; DB 21; Length 201
Pred. No. 5.30e-02;
35; Mismatches 57; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           46 others
                                                                                                                                                                                                                                                                     S.griseus gene for preproprotease (partial). A10158

    201
    /organism="Streptomyces griseus"
//db_xref="taxon:1911"
    ->201

            22 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         22
LTAQAAVRRAAREITRIPLYKGK"
1 66 c 51 g 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                            147 TCGTGCGCCCTGGGGCCCCAGG 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          122 CSGCSTCSCCSCTSACGGCCCAGG 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         147 TCGTGCGCCCTGGGGCCCCAGG 170
                                                                                                                                                                                                             122 CSGCSTCSCCSCTSACGGCCCAGG 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1. .>zuı
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                           Streptomyces griseus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 0.8%;
Best Local Similarity 36.1%;
Matches 52; Conservative
                                                 Ouery Match 0.8%;
Best Local Similarity 36.1%;
Matches 52; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cangene Corporation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           o 99
            16 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                           KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 15
                                                                                                                                                                                                                                                                             14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
             BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NID
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                             RESULT
                           ORIGIN
                                                                                                                                                       g
                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                   ö
```

ö

THIS PAGE BLANK (USPTO)



Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

	Pred. No.	0.00e+00	0.00e+00	1.90e-88	7.88e-92	3.51e-49	3.51e-49	6.91e-40	2.37e-35	2.25e-32	5.88e-13	5.88e-13	1.86e-10
	Description	zt08g02.rl NCI_CGAP_GC	EST182469 Jurkat T-cel	ny02e05.s1 NCI_CGAP_GC	oa85c05.s1 NCI_CGAP_GC	97SN1787 Rice Immature	97SN1787 Rice Immature	EST12462 Uterus tumor	97SN1784 Rice Immature	97SN1784 Rice Immature	mul3h09.rl Soares 2NbM	Homo sapiens ntcon2 co	Homo sapiens ntcon6 co
SUMMARIES	ឧ	AA281296	AA311750	AA748707	AA811084	AA754459	AA754459	AA299878	AA754458	AA754458	AA200728	AF034173	AF034177
	DB	œ	24	13	13	12	12	24	12	12	23	11	11
	Query Match Length DB	389	409	315	340	252	252	303	247	247	375	2275	099
d	Query Match	10.1	6.5	2.2	2.5	1.5	1.5	1.4	1.3	1.2	6.0	6.0	0.8
	Score	385	248	82	84	58	28	52	49	47	33	33	31
	Result No.	П	7	٣	4	ហ	ø	7	œ	σ	10	11	12
	Res			U	U		υ			O			

25 0.7 143 18 AI71394 EST217350 Normalized r 1.41e-03 25 0.7 181 6 AA386587 · EST881369 Prostate glan 1.41e-03 25 0.7 181 6 RA386587 · EST881369 Prostate glan 1.41e-03 25 0.7 213 13 RA25530 vw68hll.rl Stratagene 1.41e-03 25 0.7 242 15 AR012107 EST206558 Normalized r 1.41e-03 25 0.7 242 15 AR012107 EST206558 Normalized r 1.41e-03 25 0.7 278 13 AA888818 EST391723 Normalized r 1.41e-03 25 0.7 310 14 AA888918 EST391723 Normalized r 1.41e-03 25 0.7 312 17 AQ010004 EST189271 Normalized r 1.41e-03 25 0.7 318 16 H50134 yo27a07.rl Homo sapien 1.41e-03 26 0.7 318 16 H50134 yo27a07.rl Homo sapien 1.41e-03 27 0.7 318 16 H50134 yo27a07.rl Homo sapien 1.41e-03 28 0.7 382 AA038755 EST16305 Acrta endothe 1.41e-03 29 0.7 382 AA038755 EST16305 Acrta endothe 1.41e-03 20 0.7 382 BA5656 yi74d04.rl Homo sapien 1.99e-04 20 0.7 420 17 AI01447 UI-R-C1-ku-C-05-0-UI.s 1.41e-03 21 0.7 420 17 AA031379 ZESER01.sl Soares preg 1.41e-03 22 0.7 432 6 AA043372 UI-R-A1-dx-a-11-0-UI.s 1.41e-03 23 0.7 511 17 AA022372 UI-R-A1-dx-a-11-0-UI.s 1.41e-03 24 0.7 550 12 AA75218 aC79e03.sl Stratagene 9.41e-06 25 0.7 550 12 AA772218 aC79e03.sl Stratagene 9.41e-06 26 0.7 550 10 AA62227 nod-205.sl NCI_CGAP_PT 1.41e-03 27 0.7 550 11 AA913177 Normalized r 1.41e-03 28 0.7 550 11 AA913177 Normalized r 1.41e-03 29 0.7 550 11 AA75218 aC79e03.sl Stratagene 9.41e-06 20 0.7 2275 11 AF034273 Homo sapiens clone ntc 6.90e-07 20 0.7 1287 12 AF0338250 Homo sapiens clone ntc 6.90e-07 20 0.7 2275 11 AF034173 Homo sapiens clone ntc 6.90e-07	ALIGNMENTS AA281296 389 bp mRNA Z108902.rl NCI_CGAP_GCB1 Homo in RNA sequence.	toch mmal	L COASES I LO 587 P. LO 58	Contact: Robert Strausberg, Ph.D.  Tel: (301) 496-1550  Email: Robert_Strausberg@nih.gov This clone is available royalty_free through LLNL; contact the This clone is available royalty_free through LLNL; contact the This clone is available royalty_free through LLNL; contact the This clone is available royalty_free through LLNL; contact the This clone is available from Amersham  Insert Length: 2187 Std Error: 0.00 Seq primer: -28ml3 rev2 ET from Amersham High quality sequence stop: 385.  Location/Qualifiers    1.389
C C C C C C C C C C C C C C C C C C C	RESULT 1 LOCUS DEFINITION	ACCESSION NID KEYWORDS SOURCE ORGANISM	REFERENCE AUTHORS TITLE JOURNAL	FEATURES

```
2901 ACTACTCCAG 2910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241 ACTACTCCAG 250
                                                                                                                             96026280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         human.
                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
                                                                                                           JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Adams, M.D., Kerlavage, A.R., Fleischmann, R.D., Fuldner, R.A.,
Bult, C.J., Lee, N.H., Kirkness, E.F., Weinstock, G., Gocayne, J.D.,
White, O., Sutton, G., Blake, J.A., Brandon, R.C., Man-Wai, C.,
Clayton, R.A., Cline, T.R., Cotton, M.D., Earle-Hughes, J., Fine, L.D.,
Flizgerald, L.M., Fitzhugh, W.M., Fritchman, J.L., Geoghagen, N.S.,
Glodek, A., Gnehm, C.L., Hanna, M.C., Hedblom, E., Hinkle, P.S.Jr.,
Kelley, J.M., Kelley, J.C., Lulu, L.-I., Marmaros, S.M., Merrick, J.M.,
Moreno-Palanques, R.F., McDonald, L.A., Nguyen, D.T., Pelligrino, S.M.,
Phillips, C.A., Ryder, S.E., Scott, J.L., Saudek, D.M., Shirley, R.,
Small, K.V., Spriggs, T.A., Utterback, T.R., Weldman, J.F., Li, Y.,
Bednarik, D.P., Cao, L., Cepeda, M.A., Coleman, T.A., Collins, E.J.,
Dimke, D., Feng, D.-F., Ferrie, A., Fischer, C., Hastings, G.A.,
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalla; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1991 GCCAGAACGTTCCGCAGAGAAAGAGGCCCGAGCGTCTCACCTCGAGGGTGAAGGCACTG 2050
                                                                                                                                                                                                                                                                                                                                                                                                                    AGCAAGTIGCAAAGCATIGGAAICAGACAGCACTIGAAGAGGGIGCAGCIGCGGACGIG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCAGAACGTICCGCAGAGAAAAGAGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTG 360
                                                                                                                                                                                                                                                                                                                                                        61 TATGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTTCTACCGGAAGAGTGTCTGG 120
                                                                                                                                                                                                                                                                                             19-APR-1997
                                                                                                                                                                                                                                                                  0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AA311750 409 bp mRNA EST LY-ARTEST182469 Jurkat T-cells VI Homo sapiens cDNA 5' end, mRNA
                                                                                                                                                                                                                                  Length 389;
                                                                                                                                                                                                                      Score 385; DB 8; Lengtn .v..
Pred. No. 0.00e+00;
....matches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2051 TTCAGCGTCCAACTACGAGCGGGCGC 2079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361 TTCAGCGTGCTCAACTACGAGCGGGCGCG 389
                                                                                                                                                                                                                                  ch 10.1%;
1 Similarity 99.5%;
387; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
                                                                                                                                                                                                                               Query Match
Best Local Similarity
                                                                                                                                                                                      ๙
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g1964077
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ~
                                                                                                                                                                      mRNA
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1871
                                                                                                                                                                                                                                                                                                                                                                                      1751
                                                                                                                                                                                                                                                                                                                                                                                                                                                  1811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
```

셤 ò g g

ö

셤

ò

ద ò g ò g ò

ó

```
Fraser, C.M. and Venter, J.C.
Initial assessment of human gene diversity and expression patterns
based upon 83 million nucleotides of cDNA sequence
Nature 377 (6547 Suppl), 3-174 (1995)
He,W.W., Hu,J.S., Greene,J.M., Gruber,J., Hudson,P., Kim,A.K.,
Cozak,D.L., Kunsch,C., Hungjun,J., Li,H., Melssensr.P.S., Olsen,H.,
Raymond,L., Wel,Y.F., Wing,J., Xu,C., Yu,G.L., Ruben,S.M.,
Dillion,P.J., Fannon,M.R., Rosen,C.A., Haseltine,W.A., Fields,C.,
                                                                                                                                                                                                                                                                                           Bioinformatics
The Institute for Genomic Research
The Institute for this EST, please check the TIGR Human Gene
Index (http://www.tigr.org/tdb/hgi/hgi.html)
Seq primer: M13 Reverse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryotae, Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 315) NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap. NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap. National Cancer Institute, Cancer Genome Anatomy Project (CGAP),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="Vector: pBluescript SK-; Site_1: EcoRI; Site_2: XhoI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AA748707 315 bp mRNA EST 18-FEB-1998 ny02e05.s1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:1270592,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6. GGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGAACTTGCGGAAGACAGTGG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2721 GGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGTGAACTTGCGGAAGACAGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121 TGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGGCTTTTNTTCAGATGCCGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 409;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 248; DB 24; Length 40:
Pred. No. 0.00e+00;
0; Mismatches 2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /db_xref="ATCC (inhost):158964"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /clone_lib="Jurkat T-cells VI"
/cell_type="T-lymphocyte"
<1. .>409 86 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
1. .409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         133 g
                                                                                                                                                                                                                                                                           Contact: Kerlavage, AR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 6.5%;
Best Local Similarity 99.2%;
Matches 248; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mRNA sequence.
AA748707
g2788665
```

Sequencing Center information can be

```
AA754459 252 bp mRNA EST 20-JAN-1998 97SN1787 Rice Immature Seed Lambda ZAPII cDNA Library Oryza sativa canda cone 97SN1787, mRNA sequence.
AA754459 92801165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3']. Double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Not I and cloned into the Not and Eco RI sites of the modified prins vector. Library went through one round of normalization, and was
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryotae, Viridiplantae, Charophyta/Embryophyta group,
Embryophyta, Tracheophyta, seed plants, Magnoliophyta, Liliopsida,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Poales; Poaceae; Oryza.

1 (bases 1 to 252)
Nahm,B.H., Kim,Y.T.K., Cheong,J.J., Kim,S.I., Hahn,T.R, Moon,E.P., Kim,W.T., Kim,W.Y., Yang,M.S., Park,R.D., Sohn,U.I., Kang,K.Y., Lee,M.C. and Eun,M.Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Large-scale Sequencing Analysis of ESTs from Rice Immature Seed Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3798 ATCAGGGGATGGACTATTCCTATGTGGGGAGTGGAAGCCGGGCTCCTGGTGAGGAAAAGC 3739
                                                                  M.D., Ph.D., David Allman,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        240 ATCTGGGGATGGACTATTCCTATGTGGGGAGTGGAAGCCGGGCTCCTGGTGAGGAAAAGC 299
                                                              Tissue Procurement: Louis M. Staudt, M.D., Ph.D., David Allma Ph.D., Gerald Marti, M.D. CDNA Library Preparation: M. Bento Soares, Ph.D., M. Fatima Bonaldo, Ph.D. CDNA Library Arrayed by: Greg Lennon, Ph.D. DNA Sequencing by: Mashington Diversity Genome Sequencing Clone distribution: NCI-CGAP Clone distribution: NCI-CGAP Clone distribution: NCI-CGAP Clone distribution information found through the I.M.A.G.E. Consortium/LLNL at:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  constructed by Bento Soares and M. Fatima Bonaldo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 340;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 84; DB 13; Lengua Dred. No. 7.88e-92;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xref="taxon:9606"
/clone="IMAGE:1319048"
/clone_lib="NCI_CGAP_GCBI"
/tissue_type="germinal center B cell"
/lab_host="DH10B"
86 c 100 q 81 t
                                                                                                                                                                                                                                                                                                        Seg primer: -40ml3 fwd. ET from Amersham
High quality sequence stop: 331.
Location/Qualifiers
                                                                                                                                                                                                                                                 www-bio.llnl.gov/bbrp/image/image.html
                                                                                                                                                                                                                                                                                             Std Error: 0.00
Contact: Robert Strausberg, Ph.D.
Tel: (301) 496-1550
Email: Robert_Strausberg@nih.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3738 TGGCCCTGGGGTGGAGCCGAGCGCCA 3713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             300 TGCCCTGGGGTGGAGCCGAGCGCCA 325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 2.2%;
Best Local Similarity 98.8%;
Matches 85; Conservative
                                                                                                                                                                                                                                                                                             Insert Length: 2249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Contact: Eun M.Y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Oryza sativa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    rice.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ഹ
                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                              cDNA Library Arrayed by: Greg Lennon, Ph.D.

Mas Sequencing Dy: Washington University Genome Sequencing Center Clone distribution: NCI-CSAP clone distribution information can be round through the I.M.A.G.E. Consortium/LLNL at:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
Eukaryotae; Metazoa; Chordata; Vertebrata; Mammalia; Butheria;
Eukaryotae; Matarhini; Hominidae; Homo.
1 (bases 1 to 340)
NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
National Cancer Institute, Cancer Genome Anatomy Project (CGAP),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3798 ATCAGGGGATGGACTATTCCTATGTGGGGAGTGGAAGCCGGGCTCCTGGTGAGGAAAAGC 3739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AA811084 340 bp mRNA EST 19-FEB-1998 oa85c05.s1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:1319048, mRNA sequence.
928811084
92880695
                                                                                                                                     David Allman,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      231 ATCTGGGGATGGACTATTCCTATGTGGGGAGTGGAAGCCGGGCTCCTGGTGAGGAAAAGC 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           constructed by Bento Soares and M. Fatima Bonaldo."

/db.xref="texon:9606"
/clone="IRAGE:1270592"
/clone=lib="NCI_CGAP_GCBI"
/tissue_type="germinal center B cell"
                                                           Contact: Robert Strausberg, Ph.D.
Tel: (301) 496-1550
Email: Robert_Strausberg@nih.gov
Tissue Procurement: Louis M. Staudt, M.D., Ph.D., David Allme Ph.D., Gerald Marti, M.D.
CONA, Library Preparation: M. Bento Soares, Ph.D., M. Fatima
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 315;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1; Indels
                                                                                                                                                                                                                                                                                                                                                      Insert Length: 1226 std Error: 0.00
Seq primer: -40ml3 fwd. Erf from Amersham
High quality sequence stop: 281.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 82; DB 13; 1 Pred. No. 1.90e-88;
                                                                                                                                                                                                                                                                                                               ww-bio.llni.gov/bbrp/image/image.html
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3738 TGGCCCTGGGGTGGAGCCGAGCGC 3715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            291 TGGCCCTGGGGTGGAGCCGAGCGC 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 2.2%;
Best Local Similarity 98.8%;
Matches 83; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Tumor Gene Index
Unpublished (1997)
                  Unpublished (1997)
  Gene Index
                                                                                                                                                                                                   Bonaldo, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMMENT
                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
```

ö

0; Gaps

```
g1952209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               human.
                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               合
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Сp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                        1. .252
/organism="Cryza sativa"
/organism="Cryza sativa"
/oultivar="Milyang3"
/oute="Vector: pBluescript SK(+); Site_1: EcoRI; Site_2:
Xhof: Vector: pBluescript SK(+); Site_1: EcoRI; Site_2:
Xhof: Directional cDNA library inserted into lambda ZAPII
vector at 5'end with EcoRI and 3' end with Xho I site."
/db_xref="taxon:4530"
/clone="95N1787"
/clone="95N1787"
/clone="195N1787"
/clone="19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AA754459 252 bp mRNA EST 20-JAN-1998 97SM1787 Rice Immature Seed Lambda ZAPII cDNA Library Oryza sativa cons clone 97SN1787, mRNA sequence.
AA754459 92801165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryotae; Viridiplantae; Charophyta/Embryophyta group; Eukaryotae; Tracheophyta; seed plants; Magnoliophyta; Liliopsida; Poales; Poaceae; Oryza.

1 (bases 1 to 252)
Nahm, B.H., Kim, J.K., Cheong, J.J., Kim, S.I., Hahn, T.R, Moon, E.P., Nahm, B.H., Kim, W.T., Yang, M.S., Park, R.D., Sohn, U.I., Kang, K.Y., Lee, M.C. and Eun, M.Y.
Large-scale Sequencing Analysis of ESTs from Rice Immature Seed Unpublished (1998)
                                                                                                                                                                       Email: myeun@sun20.asti.re.kr
Subnitted by Baek Hie Nahm, Dept of Biological Science, Myongji
University, Yongin, Korea. 449-728 bhnahm@bioserver.myongji.ac.kr
Seq primer: Ml3 Reverse Primer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3032 TIGCAGGIGAACAGCCICCAGACGGIGIGCACCAACAICIACAAGAICCICCIGCIGCAG 3091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61 STMTWGTVNWBNVSGDWHYWBVBNTKVDVGNHTRCSRWRBVTRMAHYHDYTNCBBYNNND 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121 YHMWHBBMYBBTGCMTCTMWCWBHYNTKCTASGWHTSTNYDVKSSTNTWGVTBSYDKSMH 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GYWCSBBVKYHTKVSTTRATRSYTCVRKYCVMWMTKKVVKKYHVVBBGCHBIDSKCKIMW 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 HWDCTMNTVRGCCCCBAWMTTSYBCHGNBVWVCVASHGNYMSVHNCTBRGTHCDCKNVNW 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 252;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    h 1.5%; Score 58; DB 12; Length 252 Similarity 10.0%; Pred. No. 3.51e-49; 25; Conservative 120; Mismatches 105; Indels
Department of Cytogenetics
National Inst. of Agri. Sci. and Tech, RDA
Suwon, Kyunggido, Korea
Tel: 82 331 290 0301
Fax: 82 331 290 0307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Department of Cytogenetics
National Inst. of Agri. Sci. and Tech, RDA
Suwon, Kyunggido, Korea
                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 1.5%;
Best Local Similarity 10.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Contact: Eun M.Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3272 GCCGTGCAGT 3281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Oryza sativa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241 MINKHVMTST 250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               rice.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         •
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
```

```
Ladams, M.D., Kerlavage, A.R., Fleischmann, R.D., Fuldner, R.A.,

Radams, M.D., Kerlavage, A.R., Fleischmann, R.D., Fuldner, R.A.,

Bulli, C.J., Lee, N.H., Kirkness, F.F., Wainstock, K.G., Gocayne, J.D.,

White, O., Sutton, G., Blake, J.A., Brandon, R.C., Man-Wai, C.,

Clayton, R.A., Cline, T.R., Cotton, M.D., Earle-Hughes, J., Fine, L.D.,

Flizgerald, L.M., Fitzhugh, W.M., Fritchman, J.L., Geoghagen, N.S.,

Glodek, A., Gnehm, C.L., Hanna, M.C., Hedblom, E., Hinkle, P.S.Jr.,

Kelley, J.M., Kelley, J.C., Lulu, L. I., Marmaros, S.M., Merrick, J.M.,

Noreno-Palanques, R.F., McDonald, L.A., Nguyen, D.T., Pelligrino, S.M.,

Phillips, C.A., Spriggs, T.A., Utterback, T.R., Weidman, J.F., Li, Y.,

Bednarik, D.P., Cao, L., Cepeda, M.A., Coleman, T.A., Collins, E.J.,

Dimke, D., Feng, D.F., Ferrie, A., Tsacher, C., Hastings, G.A.,

Kozak, D.L., Kunsch, C., Hungjun, J., Li, H., Meissner, P.S., Olsen, H.,

Raymond, L., Walt, Y.F., Whing, J., Xu, C., Yu, G.L., Ruben, S.M.,

Dillion, P.J., Franco, M.R., Rosen, C.A., Haseltine, W.A., Fields, C.,

Fraser, C.M. and Venter, J.C.

Initial assessment of human gene diversity and expression patterns

based upon 83 million nucleotides of CDNA sequence
                                                                                                                                                                                                                                                             /organism="Oryza sativa"
/cultivar="Milyang23"
/cultivar="Milyang23"
/note="Voctor: PBluescript SK(+); Site_1: EcoRI; Site_2:
XhoI; Directional cDNA library inserted into lambda ZAPII vector at 5'end with EcoRI and 3' end with Xho I site."
/db_xref="taxon:4530"
                                                                                                                                                                                                                                                                                                                                                                                                                                        Tel: 82 331 290 0301
Fax: 82 331 290 0307
Email: myeun@sun20.asti.re.kr
Submitted by Baek Hie Nahm, Dept of Biological Science, Myongji
University, Yongin, Rorea. 449-728 bhnahm@bioserver.myongji.ac.kr
Seq primer: M13 Reverse Primer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AA299878 303 bp mRNA EST 18-APR-1997
EST12462 Uterus tumor I Homo sapiens CDNA 5' end, mRNA sequence.
AA299878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  84 NTKVDVGNHTRCSRWRBVTRMAHYHDYTNCBBYNNNDYHMWHBBMYBBTGCMTCTMWCWB 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            144 HYNTKCTASGWHTSTNYDVKSSTNTWGVTBSYDKSMHGYWCSBBVKYHTKVSTTRATRSY 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  24 BCHGNBVWVCVASHGNYMSVHNCTBRGTHCDCKNVNWSTMTWGTVNWBNVSGDWHYWBVB 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 252;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  69; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 58; DB 12; I
Pred. No. 3.51e-49;
88; Mismatches 69;
                                                                                                                                                                                       Location/Qualifiers
1. .252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 1.5%;
Best Local Similarity 12.8%;
Matches 23; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
```

```
Query Match 1.2%;
Best Local Similarity 14.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Contact: Eun M.Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Oryza sativa
                                                 7 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               92801164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         rice.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                 BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                     ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                     g
                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                   d
                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AA754458 247 bp mRNA EST 20-JAN-1998 97SN1784 Rice Immature Seed Lambda ZAPII cDNA Library Oryza sativa cDNA clone 97SN1784, mRNA sequence.

AA754458 92801164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Oryza sativa"
/cultivar="Milyang23"
/note="Vector: pBluescript SK(+); Site_1: EcoRI; Site_2:
XhoI; Directional cDNA library inserted into lambda ZAPII
vector at 5'end with EcoRI and 3' end with Xho I site."
/db_xref="taxon:4530"
Contact: Kerlavage, AR
Bioinformatics
Hoinfuture for Genomic Research
9712 Medical Center Drive, Rockville, MD 20850 USA
Tel: 3018699056
Ema: 3018699428
Email: arkerlaavetigr.org
For clone availability, additional sequence and expression
Information related to this EST, please check the TIGR Human Gene
Index (http://www.tigr.org/tdb/hgi.html)
Seq primer: M13 Reverse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Oryza sativa
Eukaryotae; Viridiplantae; Charophyta/Embryophyta group;
Embryophyta; Tracheophyta; seed plants; Magnoliophyta; Liliopsida;
Poales; Poaceae; Oryza.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone="97SN1784"
/clone_lib="Rice Immature Seed Lambda ZAPII cDNA Library"
/tissue_type="Immature Seed"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Department of Cytogenetics
National Inst. of Agri. Sci. and Tech, RDA
Suwon, Kyungqido, Korea
Tel: 82 331 290 0301
Fax: 82 331 290 0307
Fax: 82 391 290 0307
Funi: myeun@sun20.asti.re.kr
Submitted by Baek Hie Nahm, Dept of Biological Science, Myongji
University, Yongin, Korea. 449-728 bhnahm@bioserver.myongji.ac.kr
Seq primer: M13 Reverse Primer.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 (bases 1 to 247)*
Nahm,B.H., Kim,J.K., Cheong,J.J., Kim,S.I., Hahn,T.R, Moon,E.P.,
Kim,W.T., Kim,W.Y., Yang,M.S., Park,R.D., Sohn,U.I., Kang,K.Y.,
Lee,M.C. and Eun,M.Y.
                                                                                                                                                                                                                                                       /organism="Homo sapiens"
//organism="Homo sapiens"
//organ: uterus; Vector: pBluescript SK-; Site_1:
/db_xref="ATCC (inhost):193066"
/db_xref="ATCC (inhost):193066"
/db_xref="Turcon:9606"
/db_xref="Turcon:9606"
/dow_stage="adult"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Large-scale Sequencing Analysis of ESTs from Rice Immature Seed Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 303;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 52; DB 24; 1
Pred. No. 6.91e-40;
0; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                   ų
                                                                                                                                                                                                                                                                                                                                                                                                                   69
                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                     φ
                                                                                                                                                                                                                                                                                                                                                                                                                   93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 1.4%;
Best Local Similarity 98.1%;
Matches 53; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: Eun M.Y.
                                                                                                                                                                                                                                                                                                                                                                                                                 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rice.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                             MRNA
BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                     ORIGIN
```

ద ö

```
/organism="Oryza sativa"
/cultivar="Milyang23"
/note="Vector: pBluescript SK(+); Site_1: EcoRI; Site_2:
XhoI; Directional CDNA library inserted into lambda ZAPII
vector at 5'end with EcoRI and 3' end with Xho I site."
/db_xref="taxon:4530"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AA754458 247 bp mRNA EST 20-JAN-1998
SYSNI'84 Rice Immature Seed Lambda ZAPII cDNA Library Oryza sativa
CDNA Clone 97SNI'784, mRNA sequence.
AA754458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryotae; Viridiplantae; Charophyta/Embryophyta group;
Embryophyta; Tracheophyta; seed plants; Magnoliophyta; Liliopsida;
Poales; Poaceae; Oryza.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Department of Cytogenetics
National Inst. of Agri. Sci. and Tech, RDA
Tel. 82 331 290 0301
Fax: 82 331 290 0307
Email: myeun@sun20.asti.re.kr
Submitted by Baek Hie Nahm, Dept of Biological Science, Myongji
University, Yongin, Korea. 449-728 bhnahm@bioserver.myongji.ac.kr
Seq primer: M13 Reverse Primer.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /clone_lib="Rice Immature Seed Lambda ZAPII cDNA Library"
                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 (bases 1 to 247)
Nahm,B.H., Kim,J.K., Cheong,J.J., Kim,S.I., Hahn,T.R, Moon,E.P.,
Kim,W.T., Kim,W.Y., Yang,M.S., Park,R.D., Sohn,U.I., Kang,K.Y.,
Lee,M.C. and Bun,M.Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Large-scale Sequencing Analysis of ESTs from Rice Immature Seed Unpublished (1998)
                                                                                                                                                                                                                                                                                                   88 INTGGTGVGKTTVNVHSGWNNRCSNSVVYVWBTAYCDYBHYBDRANHVDDTRCTNDRGYC 147
                                                                                                                                                                                                                                                              28 IBBWCCVRRVGTTINNGKHNGRTTTWNDCSDNAHCRYTVBWYYARSKYGYGTBYYSWNVD 87
                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  148 NYTASDNGISATKRVIGYDKTDSDCGGCWRKVTYGSSBYBRCGVNVMVRTTSMWTDKST
                                                                                                                                                                                                           ö
                                                                                                                                                 Length 247;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 247;
                                                            169 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  169 others
/dev_stage="5 days after pollination"
/lab_host="E. coli SOLR"
| 16 c 21 g 34 t 169 oth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /tissue_type="Immature Seed"
/dev_stage="5 days after pollination"
/lab_host="E. coli SOLR"
                                                                                                                                           Score 49; DB 12; I
Pred. No. 2.37e-35;
93; Mismatches 88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 47; DB 12; I
Pred. No. 2.25e-32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  34 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      363 TCGGCTTCGCGCTGCTGGACGGGGCCCG 390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  208 KMBSMDMSRRSRVHYGRWMBNKKRGMSR 235
                                                                                                                                           Query Match 1.3%;
Best Local Similarity 13.0%;
Matches 27; Conservative
```

Length 375;

```
Query Match 0.9%;
Best Local Similarity 75.4%;
Matches 49; Conservative
                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ជ
                                                                                                                                                                                                                                           92707735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9270739
                                                                                                                                           2508 GCCAC 2512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  438
                                                                                                                                                                                                                                                                                                                                                                                        boundary
                                                                                                                204 GTCAC 208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     human.
                                                                                                                                                                                                                                                                          human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12
                                                                                                                                                                                      11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                   LOCUS
                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                             AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                          KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ω
                                                                                    ò
                                                                                                                g
                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 (bases 1 to 375)
Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T.,
Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M.,
Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B.,
Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Contact: Marra M/Mouse EST Project
WashD-HHMI Mouse EST Project
WashD-HHMI Mouse EST Project
WashIngton University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1810
Fax: 314 286 1810
Email: mousest@watson.wustl.edu
This clone is available royalty-free through LLNL; contact the
                                                                                                                                                                                                                              AA200728 375 bp mRNA EST 19-FEB-1997 mul3h09.rl Soares 2NbMT Mus musculus cDNA clone 639329 5', mRNA
                                            3667 ITGGCTGGACACTCAGGCCTCAGCCGACACTCAGCCTTCAGCCGGACATGCAGGG 3608
                                                                                                                                                                                                                                                                                                                                           Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
                                                                                  125 YBHYBDRANHVDDTRCINDRGYCNYTASDNGTSATKRVIGYDKTDSDCGGGCWRKVTYGS 184
                             65 TVBWYYARSKYGYGTBYYSWNVDTNTGGTGVGKTTVNVHSGWNNRCSNSVVYVWBTAYCD 124
 ö
 53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MGI:391321
Seq primer: -28M13 rev2 from Amersham
High quality sequence stop: 361.
Location/Qualifiers
1. 375
/organism="Mus musculus"
 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The WashU-HHMI Mouse EST Project Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /sex="male"
/tissue_type="Thymus"
/dev_stage="4 weeks"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          105
                                                                                                                                                                     3607 CICGGCCAAACACTCACTCAGG 3586
68;
                                                                                                                                           SBYBRCGVNVMVRTTSMWTDKS 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <1. .>375
a 95 c
                                                                                                                                                                                                                                                                                                                                Mus musculus
                                                                                                                                                                                                                                                                                                                 house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Waterston, R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          80 a
                                                                                                                                                                                                                                                          sequence.
AA200728
g1795738
                                                                                                                                                                                                                10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mRNA
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                               SOURCE
ORGANISM
                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
                                                                                                                                           185
 Matches
                                                        3727
                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                               RESULT
                                                                                  쉱
                                                                                                               c<sub>D</sub>
                                                                                                                                         셤
                            a
```

ų

b

7

```
Unpublished
2 (bases 1 to 2275)
Tripodis,u. and Regoussis,J.
Direct Submission
Submitted (13-NOV-1997) Division of Medical and Molecular Genetics,
Guy's Hospital, 7th floor, Guy's Tower, London SE1 9RT, UK
Location/Qualifiers
                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                   AF034173 2275 bp mRNA EST 22-DEC-1997
Homo sapiens ntcon2 contig mRNA, partial sequence, mRNA sequence.
AF034173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AF034177 660 bp mRNA EST 22-DEC-1997
Homo sapiens ntcon6 contig mRNA, partial sequence, mRNA sequence.
AF034177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1523 RGMKKCWKYRKYKKYTSTYYKSWSRWYWYTTYTYWYCWCCTSMKSASCAMMRWMGYMGSR 1582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2448 AGAGCICCICCCIGAATGAGGCCAGCAGTGGCCTCTICGACGICTICCATGIT 2507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
Bukaryotae; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria;
Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 660)
Tripodis, N. and Ragoussis, J.
Generation of a transcription map in the region immediately
                                                                                                  144 AGAGCATCTCTATGAATGAGGAGCAGCAGCCTGTTTGACTTCTTCCTGCACTTCCTGC 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryotae; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhin; Hominidae; Homo.

1 (bases 1 to 2275)

Tripodis,N. and Ragoussis,J.
Generation of a transcription map in the region immediately centromeric to human MHC across the 6p21.2-6p21.3 chromosomal
                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 33; DB 11; Length 2275; Pred. No. 5.88e-13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          149 others
Score 33; DB 23; Length 375
Pred. No. 5.88e-13;
0; Mismatches 16; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 47; Mismatches 25; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          599 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone="htcon2 contig"
/tissue_type="liver; brain"
/dev_stage="fetus"
/note="similar to Br140"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        470 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1583 SSRSYWGYWGSMSGCYGMTKRYY 1605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2709 AAACCTTCCTCAGGACCCTGGTC 2731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 0.9%;
Best Local Similarity 13.3%;
Matches 11; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          619 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
TITLE
```

```
Addamy, M.D., Actiladage, A.K., Fils Schmann, K.D., Fulloner, R.A., Bult, C.J., Lee, N.H., Kirkness, E.F., Weinstock, K.G., Gocayne, J.D., White, O., Sutton, G., Blake, J.A., Brandon, R.C., Man-Wai, C., Cline, T.R., Colton, M.D., Earle-Hughes, J., Fine, L.D., Fitzgerald, L.M., Fitzhugh, W.M., Fritchman, J.L., Gocghagen, N.S., Glodek, A., Gnehm, C.L., Hanna, M.C., Hedblom, E., Hinkle, P.S.Jr., Kelley, J.M., Relley, J.C., Liu, L.-I., Marmaros, S.M., Merrick, J.M., Moreno-Palanques, R.E., McDonald, L.A., Nadvek, D.R., Falligrino, S.M., Philips, C.A., Ryder, S.E., Scott, J.L., Saudek, D.M., Shirley, R., Small, K.V., Spriggs, T.A., Utterback, T.R., Weldman, J.F., Li, Y., Bednarik, D.P., Cao, L., Cepeda, M.A., Coleman, T.A., Colliss, E.J., Dimke, D., Feng, D.-F., Ferrie, A., Fischer, C., Hastings, G.A., Hay, J.S., Greene, J.M., Gruber, J., Hudson, P., Kim, A.K., Kozak, D.L., Runsch, C., Hungjun, J., Li, H., Merssner, P.S., Olsen, H., Raymond, L., Wei, Y.F., Wing, J., Xu, C., Yu, G.L., Ruben, S.M., Dillion, P.J., Fannon, M.R., Rosen, C.A., Haseltine, W.A., Fields, C., Fraser, C.M. and Venter, J.C.
Initial assessment of human gene diversity and expression patterns based upon 83 million nucleotides of cDNA sequence
                                                                                                                                                                                                                                                   Homo sapiens
Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                               AA386387 181 bp mRNA EST 22-APR-1997 EST81369 Prostate gland I Homo sapiens cDNA 5' end similar to proly1 4-hydroxylase, beta subunit/protein disulfide isomerase/thyroid hormone-binding protein, mRNA sequence. AA386387
                                                                                                                                                                                                                                                                                                                                           1 (bases 1 to 181)
Adams,M.D., Kerlavage,A.R., Fleischmann,R.D., Fuldner,R.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  96026280
                                                                                                                                                                                                                                     nmmun.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15
                                                                    LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mRNA
BASE COUNT
                                                                                                                                                                                                                              SOURCE
ORGANISM
                                                                                                                                                            ACCESSION
NID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AI171394 143 bp mRNA EST 07-0CT-1998 EST217350 Normalized rat muscle, Bento Soares Rattus sp. cDNA clone RMUBK19 3' end, mRNA sequence.
                                                                                                                                      Genetics,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
1 (bases 1 to 113)
Lee, N. H., Glodek, A., Chandra, I., Mason, T. M., Quackenbush, J., Kerlavage, A.R. and Adams, M.D.
Rat Genome Project: Generation of a Rat EST (REST) Catalog & Rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Rattus sp."
/note="Organ: muscle; Vector: pT7T3Pac; Site_1: EcoRI;
Site_2: NotI"
                  bounca,
L Unpublished
S (bases 1 to 660)
RS Tripodis,N. and Ragoussis,J.
Direct Submission
AL Submitted (13.NOV-1997) Division of Medical and Molecular Genet Guy's Hospital, 7th floor, Guy's Tower, London SEI 9RT, UK
Location/Qualifiers
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                 /Clone="ntcon6 contig"
/tissue_type="fetal brain; fetal liver; adult muscle"
/note="similar to CutA"
centromeric to human MHC across the 6p21.2-6p21.3 chromosomal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         rat muscle, Bento Soares'
22 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The Institute for Genomic Research 9712, Medical Center Drive, Rockville, MD 20850, USA Tel: (301)-838-3529 Fax: (301)-838-0208 Fmail: nheetigr.org Seq primer: M13-21.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 25; DB 18; Length 143;
Pred. No. 1.41e-03;
0; Mismatches 11; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 660;
                                                                                                                                                                                                                                                                                                                                                                                        55 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 31; DB 11; Length 660 Pred. No. 1.86e-10; 31; Mismatches 7; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4 GGGAGCGCATGGGCCGGCTGCGGGCTCGCGCCGTCCCGCTGGTG 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          104 GGGAGCGCACGGCTCGGCAGCGGGGACGCGCGCGCATCGCGGGGTG 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  384 WSSRCCYRSYGMYHYYYCYYKKCDMSCTTSKSRWYKSKRSWCDCD 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         348 AGAACGTGCCTTCGCCTTCGCGCTGCACGGGGCCCGCG 392
                                                                                                                                                                                                                                                                                                                                                                                        109 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db_xref="taxon:10118"
/clone="RMUBK19"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                     173 g
                                                                                                                                                                                                                                                                      /chromosome="6"
/map="6p21.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 0.8%;
Best Local Similarity 15.6%;
Matches 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Unpublished (1998)
Other_ESTs: TC52270
Contact: Lee, NH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 0.7%;
Best Local Similarity 76.6%;
Matches 36; Conservative
                                                                                                                                                                                                                                                                                                                                                                                        161 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1. .143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gene Index
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Rattus sp.
Rattus sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AI171394
g3711434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                    REFERENCE
                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
```

```
Fax: 3018699423
Email: arkerlav@tigr.org
Email: arkerlav@tigr.org
for clone availability, additional sequence and expression
information related to this EST, please check the TIGR Human Gene
Index (http://www.tigr.org/tdb/hgi/hgi.html)
Seq primer: M13 Reverse.

    .181
    /organism="Homo sapiens"
    /organism="Drostate; Vector: pBluescript SK-; Site_1: EcoRI; Site_2: XhoI"
    /db_xref="RoxCo (inhost):174439"
    /db_xref="taxon:9606"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  69 IGCCGCGCGCCTCCCGCTGCCGAGCCGTGCGCTCCTGCTGCGCAGCCATACCGCGAGG 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Gaps
                                              Bioinformatics
The Institute for Genomic Research
9712 Medical Center Drive, Rockville, MD 20850 USA
Tel: 3018699056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 181;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches 18; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 25; DB 6; I
Pred. No. 1.41e-03;
                                                                                                                                                                                                                                                                                                                                                                                                                         /clone_lib="Prostate gland I"
                                                                                                                                                                                                                                                                                                                                                                                                                                              /sex="male"
/dev_stage="adult, 21 yrs"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 32
Other_ESTs: EST81368 THC170792
Contact: Kerlavage, AR
                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              59 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity 70.0%;
42; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
```

US-08-951-733-19.rst

```
AA855630 187 bp mRNA EST 06-MAR-1998 vw68h11.rl Stratagene mouse heart (#937316) Mus musculus cDNA clone 1260165 5' similar to TR:Q99960 Q99960 PLAKOPHILIN 2A. [1] ;, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota: Metazoa; Chordata; Vertebrata; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
1 (Dases I to 187)
Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylle,T., Lennon,G., Soares,B., Wilson,R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Marra M/Mouse EST Project
WashU-HHMI Mouse EST Project
WashIngton University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1810
Fax: 314 286 1810
Email: mouseest@watson.wustl.edu
Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
MGI:66271
Seq primer: -28ml3 rev1 ET from Amersham
High quality sequence stop: 178.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1...187.

// Organism="Mus musculus"
// Strain="Mus musculus"
// Strain="Mus musculus"
// Strain="Mussulus"
// Str
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 187;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 25; DB 13; Length 187
Pred. No. 1.41e-03;
0; Mismatches 5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /dev_stage="13 day embryos"
/lab_host="SOLR (kanamycin resistant)"
65 c 70 g 23 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Waterston, R.
The WashU-HHMI Mouse EST Project
Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 0.7%;
Best Local Similarity 85.7%;
Matches 30; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                 Mus musculus
                                                                                                                                                                                                                                                                                                                                          house mouse.
                                                                                                                                                                                                AA855630
g2943168
                                                                                                                                                    sequence.
                                                                                                                                                                                                                                             NID
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
    LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
```

ö

Gaps

; 0

合 ö Search completed: Fri Dec 25 05:48:10 1998 Job time : 13715 secs.

*****	***************************************	υ	
		U	
 } 		υυ .	118 34 119 36 20 36 21 35 22 34 35 23 35 35 35 35 35 35 35 35 35 35 35 35 35
Release 3. Copyright Di	Release 3.1A John F. Collins, Biocomputing Research Unit. Copyright (c) 1993-1998 University of Edinburgh, U.K. Distribution rights by Oxford Molecular Ltd	U U	
MPsrch_nna n.a with gap	<ul> <li>n.a. database search, using Smith-Waterman algorithm gap extension penalties as well as gap opening penalties</li> </ul>	U	
Run on: Fri Dec 25 Tabular output not generated	Fri Dec 25 05:48:30 1998; MasPar time 1203.77 Seconds 429.257 Million cell updates/sec t generated.	υυυ	
Title: >US.(1-3) Description: (1-3) Perfect Score: 3798 N.A. Sequence: Comp:	>US-08-951-733-19 (1-3798) from USO8951733.seq 3798	00 0	
Scoring table: TAB	TABLE default Gap open 30; Gap extend 1		
Nmatch STD : Dba	Dbase 0; Query 0		
Searched: 188	188442 segs, 68026449 bases x 2		
Post-processing: Min Lis	Minimum Match 0% Listing first 45 summaries	RESULT ID Q	LT 1 051746 sta
Database: n-9	1.part1 2:part2 3:part3 4:part4 5:part5 6:part6 7:part7 1:part1 2:part1 2:part2 3:part3 4:part4 5:part5 6:part6 7:part7 1:part14 15:part16 10:part10 11:part11 12:part12 13:part13 14:part14 15:part15 16:part16 17:part17 18:part13 20:part23 22:part23 23:part23 23:part23 23:part23 23:part23 23:part23 23:part23 23:part33 23:part33 23:part35 23:part35 23:part35 23:part35 23:part35 23:part35 23:part35 23:part36 23:part37 23:part38	AC MW WW W	051746; 31-MAY-199 011gonucle 011gonucle ss. Synthetic. EP-571911- 01-DEC-199 24-MAY-199 26-MAY-199
Statistics: Mean	in 9.981; Variance 6.350; scale 1.572	A P	(BECT ) BE Shank DD, wpr. 03-37

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

	Pred. No.	2.38e-10	2.38e-10	1.13e-07	1.13e-07	2.87e-09	3.34e-08	3.78e-07	1.25e-06	1.25e-06	1.25e-06	1.25e-06	1.25e-06
	Description	Oligonucleotide probe	Oligonucleotide probe	Generic DNA sequence	Human interleukin 8 a	Base substituted E.co	Base substituted E.co	Generic DNA sequence					
	ΩI	051746	051746	070466	T76363	N81164	N81164	070469	070468	070465	070465	070468	070467
	DB	6	σ	12	32	-	m	12	12	12	12	12	12
	Query Match Length DB ID	91	91	114	172	204	204	114	114	114	114	114	114
ф	Query Match	1.2	1.2	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0
	Score	45	45	40	40	43	41	33	38	38	38	38	38
	Result No.	-	7	m	4	S	ø	7	ω	6	10	11	12
	Res		υ		υ		υ				υ	υ	O

RESULT

00000000000000000000000000000000000000	ő
3.5	1.226 for MX14 but 60 60
·	· · · · · · · · · · · · · · · · · · ·
eric DNA sequence an RANTES antisens an MDNCF antisens ol an 113 receptor a an 114 receptor a an 114 receptor a an 114 receptor a an 114 receptor a an 115 receptor a an 116 antisense eric DNA sequence eric DNA	i disease diagnosis  Mycobacteria - use ria nucleic acid in nucleotides 5-95 o mycobacteria tested spp. The probe ma acterial infection.  G; 4 T; B 9; Length 91; 38e-10; whhyvbyhyvs ::::::::::::::::::::::::::::::::::::
	TTS  Tteria;
070469 1756405 1756405 1756405 070466 070440 070440 070440 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170 176170	ALIGNMENTS  ALIGNMENTS  11 BP.  14.A  be; mycobacteria  bes specific for  10 of Mycobacte  con mycobacterial  con mycobacterial  specific for  11 A consists of  con mycobacterial  screen for mycob  5174-59.  17 C; 15  18; Score 45; D  18; Score 45; D  18; Score 45; D  19; Score 45; D  11 C; Nismatc  this whith whith why sevy  this whith
	1   1   1   1   1   1   1   1   1   1
48444444488888888888888888888888888888	dard; CDNA; 91 BF  (first entry) tide probe MK14-P tide; DNA probe; 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651. 108-889651
HHH00000000000000000000000000000000000	standard; 1994 (fir cleotide; 11c. 11c. 1993; 1083 1993; 1083 1992; US 1993; 1083 1993; 1083 1993; 1083 1994; VA 1995; 1083 1995; 1083 1995; 1083 1093; 1083 1093; 1083 1093; 1083 1093; 1083 1093; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 1083; 10
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	44400 HERREY ONGENT SEE BO.
11111111111111111111111111111111111111	SULT 0511-0511-0511-0511-0511-0511-0511-0511
0 0 00 0 0 000 00	RESULATION OF THE STATE OF THE
	•

N

```
WO9640162-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          induced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 subject
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT TO THE HEAD THE HEAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
  8888888888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 identifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins becening a recombinant vector library expressing fusion proteins bisclosure; page 35, 255pp; Emplish.

Oldf66 is a generic DNA sequence used to generate random TSAR (Totally Synthetic Affinity Reagents) peptides.This generic formula can also be represented as follows: X(NNB)10TGC) (NNB)10(TGC)2(NNB)4Z(NNB)8(TGC)(NNB) that are not specified further. Other generic sequences are shown in R65151-54. TSARs are concatenated by these generic sequences are shown in R65151-54. TSARs are concatenated heterofunctional proteins or peptides, comprising at least two functional regions - a binding domain with affinity for a ligand and a second effector peptide portion that is chemically or biologically active.They may further comprise a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Generic DNA sequence to generate a random TSAR-9 petide library.
TSAR: totally synthetic affinity reagent; synthetic; binding domain;
effector domain; concateneated heterofunctional protein; linker;
direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4 tccggcgssvhsyyvvhvvshhhsvhhvvhhvhhvvhvvhhvhhvhhvhyhvyvsvct 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ď
                                                                                                                                                                                                                                                                                                                   New oligo:nucleotide probes specific for Mycobacteria - used for detection and amplification of Mycobacteria nucleic acid in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            þe
                                                                                                                                                                                                                                                                                                                                                                                 Claim 3; Page 14; 23pp; English.
Oligonucleotide probe MK14-A consists of nucleotides 5-95 of (Q51735). It hybridized to all spp. of mycobacteria tested, cross reacted to a few non-mycobacterial spp. The probe may be useful as an initial screen for mycobacterial infection. See also Q51735-45 and Q51747-59.
Sequence 91 BP; 5 A; 17 C; 15 G; 4 T;
                                     31-MAY-1994 (first entry)
Oligonucleotide probe MK14-A
Oligonucleotide; DNA probe; mycobacteria; disease diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            can
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 91;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note= "this sequence represents 'Z'; Z sequence of 6, 9 or 12 nucleotides (see
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 45; DB 9; LA Pred. No. 2.38e-10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      45; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LT 3
Q70466 standard; DNA; 114 BP.
Q70466;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /*tag= a
/note= "this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
Fowlkes DM, Kay BK;
                                                                                                                                                                                                  24-MAY-1993; 108325.
26-MAY-1992; US-889651.
(BECT ) BECTON DICKINSON CO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 1.2%;
Best Local Similarity 11.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              05-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      comments)"
standard; cDNA; 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ..60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-013416.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-176500.
                                                                                                                                                                                                                                                                      Shank DD, Spears PA; WPI; 93-378844/48.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      U00977.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 94-279739/34.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   P-PSDB; R65152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   30-DEC-1993;
                                                                                                                                                         EP-571911-A.
01-DEC-1993.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-FEB-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO9418318-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18-AUG-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Synthetic.
                                                                                                               ss.
Synthetic.
                                                                                                                                                                                                                                                                                                                                                                   samples
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ď
```

```
linker peptide between the 2 domains. The oligonucleotides are also designed so that the expressed peptide contains 2 or 4 cysteine residues positioned in, or flanking, the unpredicted or variant residues. These residues confer some degree of conformational rigidity to the peptides. The TSARS or compsns. comprising a TSAR binding domain can be used in vivo to deliver a chemically or biologically active moiety, eq. metal ion, radioisotope, peptide, toxin or enzyme, to the specific target or on the cell. They can also replace the function of macromolecules, eg. monoclonal or polyronal antibodies and therefore circumvent the need for complex methods of hybridoma formation or in vivo antibody production. The TSARS are easily characterised and have designed activity allowing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A method for treating airway disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonucleotide (ON) to the airway epithelium of the subject. The present sequence is an antisense oligonucleotide specific for the human interleukin 8, targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary diseases, bronchitis and other airway diseases characterised by an inflammatory response. By eliminating adenosine from the antisense ON, its liberation upon antisense degradation is prevented, thereby preventing adenosine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |:| | :|:::|: || :| || :| || 3487 CIGGCIGIGGCCGGGTCCAGGATGCICITGAAGTCTGAGGGCAGTGCCGG 3428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        71 gtbggtcbgbbbgbtgtgcttbccttcbcbcbgbgctgcbgbbbtcbggbbggctgccbb 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         149 GTGCGGCGCCTGGGGCCCCAGGGCTGCGGGGTGCAGCGCGGGGGACCCGGCGGCGCTTTC 208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11 bccbbbgcbtcbbgbbtbgctttgctbtctbbggbtcbcbtttbgbcbtbggbbbbcgct 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3 btgcnnbnnbnnbnnbnnbnnbnnbnnbnnbtgctgcnnbnnbnnbnnbnnnnnnn 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MOSTAINS AND A STANDARD A STANDARD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           bronchoconstriction in patients with hyper-reactive airways 172 BP; 0 A; 35 C; 42 G; 39 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                63 banbanbanbanbanbanbanbtgcanbanbanbanbanbanbanbanbanb 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15-5EP-1997 (first entry)
Human interleukin 8 antisense oligonucleotide.
Asthma; airway epithelium; adenosine free; cystic fibrosis; chronic obstructive pulmonary disease; bronchitis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 40; DB 32; Length 172;
Pred. No. 1.13e-07;
52; Mismatches 59; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 40; DB 12; Length 114
Pred. No. 1.13e-07;
32; Mismatches 70; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   direct and rapid detection in a screening process. Sequence 114 BP; 0 A; 4 C; 4 G; 4 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gbgbgccbcggccbgcttggbgtcbtgtttbcbcbcbg 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim 5; Page 36; 71pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            I76363 standard; DNA; 172 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity 8.9%;
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 1.1%;
Best Local Similarity 29.7%;
Matches 47; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0 A;
```

ď

```
Introducing random point mutations into nucleic acods -
Introducing random point mutations into nucleic acods -
Introducing random completion of molecules and screening.

In since progration, completion of molecules and screening.

Bisclosure: p; English.

Random point mutations were introduced into the alpha fragment of
E.Coli beta-galactosidase. The wild type sequence was obtained as a single stranded template and an oligonuclectide was hybridised to
it to generate a popn of DNA molecules which terminate at all possible nuclectide positions within a specified region. The possible nuclectide positions within a specified region. The reverse transcriptase. Nuclectides are misincorporated by the transcriptase and the molecules are completed to forms that can be transcriptase and then expressed in a suitable host-vector system.

The sequence covers all 176 diffit base substitutions, most of which cocurred singularly in any given mutant.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FORTION DAY, MAY DAY, WPI; 94-27939/34.

Identifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins comprising a binding domain and an effector domain Disclosure; Page 35; 255pp; English.

070469 is a generic DNA sequence used to generate random TSAR peptide This generic Cormula can be represented as follows: X(TGC)(NNB)10-(TGC)(NNB)2(TGC)(NNB)14(TGC)x. X and Y are flanking restriction sites (X is not the same as Y) that are not specified further. This sequence generates peptides that are cloverleaf in structure. Other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2094 AGGAGGCCGGGCCCCCCCCCCCTCGTAGTTGAGCACGCTGAACAGTGCCTTCACCCTC 2035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2034 GAGGIGAGACGCICCGCCCCTTITTTCTCTGCGGAACGTTCTGGCTCCCACGACGTGAGTCC 1975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              50 aggnyccccggggywccgagcycgaayycdchvgccgymrttthhyrrmrbnvyrdynrsd 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             110 aaawyccyrrsvkydccynachhddhyvybbbvynvhnhnncncccbnnhvchnvhbnnh 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Generic DNA sequence to generate a random TSAR peptide library.
TSAR: totally synthetic affinity reagent; synthetic; binding domain;
effector domain; concateneated heterofunctional protein; linker;
direct; rapid; detection; screening; treatment; generic; ss.
Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /*tag= a
/note= "this sequence represents '2'; 2 can
sequence of 6,9 or 12 nucleotides (see
comments)"
                                                                          Lehtovaara P, Knowles J, Koivula A, Bamford J, Reinikainen WPI; 88-279927/40.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 1.1%; Score 41; DB 1; Length 204; Best Local Similarity 18.8%; Pred. No. 3.34e-08; Matches 27; Conservative 58; Mismatches 59; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         47 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1974 ATGITCACAATCGGCCGCAGCCCG 1951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            170 rnwayvrhdarrddvhccvchccg 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-FEB-1994; U00977.
01-FEB-1993; US-013416.
30-DEC-1993; US-105500.
31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
FOWIKES DM, KAY BK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q70469 standard; DNA; 114 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q70469;
07-APR-1995 (first entry)
                                                (SUSO) SUOMEN SOKERI OY.
30-MAR-1988; 105163.
03-APR-1987; US-034819.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ..60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO9418318-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18-AUG-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Disclosure; promitted to morecutes and screening.

Bandom point mutations were introduced into the alpha fragment of Random point mutations were introduced into the alpha fragment of E.coli beta-galactosidase. The wild type sequence was obtained as a single stranded template and an oligomoucleotide was hybridised to it to generate a popn of DNA molecules which terminate at all possible nucleotide positions within a specified region. The variable 3' ends generated in this way are used as primers for reverse transcriptase. Nucleotides are misincorporated by the transcriptase and the molecules are completed to forms that can be amplified and then expressed in a suitable host-vector system. The sequence covers all 176 difft base substitutions, most of which cocurred singularly in any given mutant.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 890 CCTGCCAGACCCGCCGAAGAAGCCACCTCTTTGGAGGGTGCGCTCCTTGGCACGCCCCC 949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          105 ynrsdaaawyccyrrsvkydccynachhddhyvybbbvynvhnhnncncccbnnhvchnv 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 03-APR-1987; US-034819.
(SUSO) SUOMEN SOKERI OY.
Lehtvoraara P. Knowles J, Koivula A, Bamford J, Reinikainen T;
WPI; 88-279927/40.
Introducing random point mutations into nucleic acods -
by prepn of single stranded template, annealing a primer, elongation, misincorporation, completion of molecules and screening.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           bcyrraggnyccccgggywccgagcycgaayycdchygccgymrttthhyrrmrbnvyrd 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N81164;
08-NOV-1990 (first entry)
Base substituted E.coli beta-galactosidase alpha-fragment.
E.coli beta galactosidase alpha-fragment; base substitutions; ss.
Escherichia coli.
                                                                                                                   N81164;
08-NOV-1990 (first entry)
8-NOV-1990 (first entry)
8-Ses substituted E.coli beta-galactosidase alpha-fragment.
E.coli beta galactosidase alpha-fragment; base substitutions; ss.
Escherichia coll.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           108 Others;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 204;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11 T;
3427 GITGGCTGCGGCCTCCAGGGCAGTCAGCGTCGTCCCCG 3390
                                                                                                                                                                                                                                                                                     /*tag= a
/function=multiple cloning site
187..204
/*tag= b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /*tag= a
//function=multiple cloning site
187.204
/*tag= b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 1.1%; Score 43; DB 1; I Best Local Similarity 20.9%; Pred. No. 2.87e-09; Matches 31; Conservative 57; Mismatches 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           47 C; 17 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         165 hbnnhrnwayvrhdarrddvhccvchcc 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N81164 standard; DNA; 204 BP
                                                                     .T 5
N81164 standard; DNA; 204 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21 A;
                                                                                                                                                                                                                                                                        69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19..69
                                                                                                                                                                                                                                                                                                                                                                                                                     05-MAY-1988.
30-MAR-1988; 105163.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           204 BP;
                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EP-285123-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               primer_bind
                                                                                                                                                                                                                                                                                                                                                primer_bind
```

Sequence

DEPLOY THE PROPERTY OF THE PRO

45

ö ద ò g ò RESULT

þ

ö

ô

108 Others;

```
generic sequences are shown in 070465-68. Other specific peptides generated by these generic sequences are shown in R65150-54. TSARS are concatenated heterofunctional proteins or peptides, comprising at least two functional regions - a binding damic with affinity for a ligand and a second effector peptide portion that is chemically or biologically active. They may further comprise a linker peptide between the 2 domains. The oligonucleotides are also designed so that the expressed peptide contains 2 or 4 cysteine residues. These residues confer some degree of unpredicted or variant residues. These residues confer some degree of a TSAR binding domain can be used in vivo to deliver a chemically or biologically active moiety, eg. metal ion, radioisotope, peptide, toxin or enzyme, to the specific target or on the cell. They can also replace the function of macromolecules, eg. monoclonal or polyclonal antibodies and therefore circumvent the need for complex methods of hybridoma conference characterised and have designed activity allowing direct and rapid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            reaching proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins comprising a binding domain and an effector domain bisclosure; Page 35; 255pp; English and for a sequence used to generate random TSAR (Totally CY0468 is a generic DNA sequence used to generate random TSAR (Totally Synthetic Affinity Reagents) peptides. This generic formula can also be represented as follows: X(NNB)1(TGC)(NNB)5(NNB)7(TGC)(NNB)10Y. X and Y are flanking restriction sites (X is not the same as Y) that are not specified further. Other generic sequences are shown in Q70466-68.

Cher specified further. Other generated by these generic sequences are shown in R65151-54. TSARS are concatenated heterofunctional proteins or peptides, comprising at least two functional regions - a binding domain with affinity for a ligand and a second effector peptide portion that is chemically or biologically active-fihey may further comprise a linker peptide between the 2 domains. The oligonucleotides are also designed so
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  150 recedences and reconstance and reconstance reconstance and reconstance and reconstance reconstance and reconstance reconst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tgcanbanbanbanbanbanbanbanbanbanbtgcanbanbanbanbanbanbananna 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Generic DNA sequence to generate a random TSAR petide library.
TSAR; totally synthetic affinity reagent; synthetic; binding domain;
effector domain; concatenated heterofunctional protein; linker;
direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                55..60
/*tag= a
/note= "this sequence represents '2'; 2 can be
sequence of 6, 9 or 12 nucleotides (see
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         210 GCGCGCTGGTGGCCCAGTGCCTGGTGCGTGCCCTGGGACGCACGGCCGC 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    32; Mismatches 71; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 39; DB 12; ]
Pred. No. 3.78e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  detection in a screening process.
Sequence 114 BP; 0 A; 4 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JT 8
Q70468 standard; DNA; 114 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (UYNC-) UNIV NORTH CAROLINA.
Fowlkes DM, Kay BK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1.08;
7.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q70468;
05-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         comments)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-013416.
US-176500.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-FEB-1993; US-013416
30-DEC-1993; US-176500
31-JAN-1994; US-189331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         U00977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 94-279739/34.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P-PSDB; R65154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO9418318-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HID DAY WENT THE FETTER OF THE PROPERTY OF THE
                    硆
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
```

```
Terbuis rolling and wolld.

Identifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins

PT comprising a binding domain and an effector domain

Disclosure; Page 35; 25pp; English.

Comprising a binding domain and an effector domain

Disclosure; Page 35; 25pp; English.

Comprising a generic DNA Sequence used to generate random TSAR (Totally Comprised as follows: X(NNB) [GCC) (NNB) 112 (NNB) 14 (TGC) (NNB) 12 (NNB) 12 (NNB) 12 (NNB) 12 (NNB) 12 (NNB) 12 (NNB) 14 (TGC) (NNB) 12 (NNB) 
that the expressed peptide contains 2 or 4 cysteine residues positioned in, or flanking, the unpredicted or variant residues. These residues confer some degree of conformational rigidity to the peptides. The TSARs or compsns. comprising a TSAR binding domain can be used in vivo to deliver a chemically or biologically active moiety, eg. metal ion, radioisotope, peptide, toxin or enzyme, to the specific target or on the cell. They can also replace the function of macromolecules, eg. monoclonal or polyclonal antibodies and therefore circumvent the need for complex methods of hybridoma formation or in vivo antibody production. The TSARs are easily characterised and have designed activity allowing direct and rapid detection in a screening process.
                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           152 GGGGGCCTGGGGCCCCAAGGGCTGGCGGCTGGTGCAGCGCGGGGACCCGGCGGCTTTCCGC 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        070465,
05-APR-1995 (first entry)
Generic DNA sequence to generate a random TSAR petide library.
TSAR; totally synthetic affinity reagent; synthetic; binding domain;
effector domain; concateneated heterofunctional protein; linker;
direct; rapid; detection; screening; treatment; generic; ss.
Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3 banbanbanbanbanbanbanbanbanbanbtgcanbanbanbanbanbanbannann 62
                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /*tag= a
//note= "this sequence represents 'Z'; Z can be a
sequence of 6, 9 or 12 nucleotides (see
comments)*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 63 banbanbanbanbanbanbtgcanbanbanbanbanbanbanbanbanbanb 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 114;
                                                                                                                                                                                                                                                                                                                                                                                         Pred. No. 1.25e-06; 34; Mismatches 73;
                                                                                                                                                                                                                                                                                                                                                                DB 12;
                                                                                                                                                                                                                                                                                                                                                                   Score 38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                UL-FEB-1993; US-013416.
30-DEC-1993; US-105500.
31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
FOWLES DM, KAY BR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JT 9
Q70465 standard; DNA; 114 BP
                                                                                                                                                                                                                                                                                                                                                             1.0%;
                                                                                                                                                                                                                                                                                                                                                                                       4.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 94-279739/34.
P-PSDB; R65150 and R65151.
                                                                                                                                                                                                                                                                                                                                                                                                                      5; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              . . 60
                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18-AUG-1994.
01-FEB-1994; U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO9418318-A
                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
        888888888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
```

Pred.

Best Local Similarity

S

```
Tentifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins comprising a binding domain and an effector domain bisclosure; Page 35: 255pp English.

O70465 is a generic DNA sequence used to generate random TSAR (Totally Synthetic Affinity Reagents) peptides. This generic formula can also be represented as follows: X(NNB)6(TGC)(NNB)11Z(NNB)14(TGC)(NNB)3Y. X and Y are flanking restriction sites (X is not the same as Y) that are not specified further. Other generic sequences are shown in Q70466-68.

Other specified further of the generated by these generic sequences are shown in R6515-54. TSARs are concatenated heterofunctional proteins or peptides, comprising at least two functional regions - a binding domain with R65151-54. TSARs are concatenated heterofunctional proteins or peptides, comprising at least two functional regions - a binding domain with a finity for a ligand and a second effector peptide portion that is chemically or biologically active. They may further comprise a linker peptide between the 2 domains. The oligonucleotides are also designed so that the expressed peptide contains 2 or 4 cysteine residues positioned in, or flanking the unpredicted or variant residues. These residues confer some degree of conformational rigidity to the peptides. The TSARs and functional rigidity to the peptides. The TSARs and functional rigidity to the peptides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           deliver a chemically or biologically active molety, eg. metal ion, radioisotope, peptide, toxin or enzyme, to the specific target or on the radioisotope, peptide, toxin or enzyme, to the specific target or on the cell. They can also replace the function of macromolecules, eg. monoclonal or polyclonal antibodies and therefore circumvent the need for complex methods of hybridoma formation or in vivo antibody activity allowing direct and rapid detection in a screening process. Sequence 114 Bp; 0 A; 2 C; 2 G; 2 T;
                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                          2491 CTTCCTACGCTTCATGTGCCACCACGCGGTGCGCATCAGGGGCAAGTCCTACGTCCAGTG 2550
monoclonal or polyclonal antibodies and therefore circumvent the need for complex methods of hybridoma formation or in vivo antibody production. The TSARs are easily characterised and have designed activity allowing direct and rapid detection in a screening process. Sequence 114 BP: 0 A: 2 C: 2 G: 2 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Generic DNA sequence to generate a random TSAR petide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                           3 bandandandandandtgcandandandandandandandandandandandandang 62
                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                        2551 CCAGGGGATCCCGCAGGCTCCATCCTCCACCGCTGCTCTGCAGCCTGTGC 2602
                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                          /*tag= a
/note= "this sequence represents '2'; 2 can
sequence of 6, 9 or 12 nucleotides (see
comments)"
                                                                                                                                              Length 114;
                                                                                                                                            Score 38; DB 12; Length 114
Pred. No. 1.25e-06;
33; Mismatches 73; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                             JT 10
Q70465 standard; DNA; 114 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
Fowlkes DM, Ray BK:
                                                                                                                                              1.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     070465;
05-APR-1995 (first entry)
                                                                                                                                                                                              6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             P-PSDB; R65150 and R65151.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        55..60
/*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-FEB-1993; US-013416.
30-DEC-1993; US-176500.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-FEB-1994; U00977.
                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 94-279739/34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO9418318-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Synthetic.
                                                                                                                                                                                              Matches
     នូមួមមន្ត
                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
```

Score 38; DB 12; Length 114;

1.0%;

Query Match

```
Tightlifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins by screening a recombinant vector library expressing fusion proteins by screening a recombinant vector library expressing fusion proteins by screening a recombinant vector library expressing fusion be bisclosure; Page 35; 255pp; English and protein and an also be considered as follows: X(NNB)11(TC)(NNB)52(KNB)7(TC)(NNB)100; X and Y are flanking restriction sites (X is not the same as Y) that are constructed further. Other specified further. Other specified further. Other specified further. Other specified further of sequences are shown in R5151-54. TSARs are concatenated heterofunctional proteins or peptides. Other specified peptides generated by these generic sequences are shown in R5151-54. TSARs are concatenated heterofunctional proteins or peptides. Comprising at least two functional regions - a binding domain with affinity for a ligand and a second effector peptide portion that is chemically or biologically active. They may further comprise a linker of faming the expressed peptide contains? The oligonucleotides are also designed so that the expressed peptide contains 2 or 4 cysteine residues positioned in, or flanking, the unpredicted or variant residues. These residues confers some degree of conformational rigidity to the peptides. The TSARs or comprising a TSAR binding domain can be used in vivo to confers complex methods of hybridoma formation or in vivo antibody connoclonal or polyclonal antibodies and therefore circumvent the need corromation are perfected and have designed activity sequence lits BP; 0 A; 2 C; 2 C; 2 C;
                                                                                                          1528 GAAGCGGCGTTCGTTGTGCCTGGAGCCCTGGGGGCCTGGGGGCACCAGCCGGCGCAGGCA 1469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1543 CTTGGTGTTCCTGAGGAAGCGGCGTTCGTTGTGCCTGGAGCCCCAGAGGCCTGGGGGCAC 1484
                                                                                                                                                                                                                                                                                                                                       Generic DNA sequence to generate a random TSAR petide library. TSAR; totally synthetic affinity reagent; synthetic; binding domain; effector domain; concatenated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3 banbanbanbanbanbanbanbanbanbanbtgcanbanbanbanbanbanbannan 62
                                                                    banbanabanbanbtgcanabanbanbanbanbanbanbanbanbanbanbanbananan 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          þe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
0
                                                                                                                                                                           1468 GGCCCGCACGAAGCCGTACACCTGCCAGGGGCTGCTGTGCTGGCGGAGCAGC 1417
                                                                                                                                                   can
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 12; Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No. 1.25e-06;
34; Mismatches 73; Indels
No. 1.25e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note= "this sequence represents '2'; Z sequence of 6, 9 or 12 nucleotides (see comments)"
                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 38;
                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                             BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /*tag= a
/note= "this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (UYNC-) UNIV NORTH CAROLINA.
Fowlkes DM, Kay BK;
WPI; 94-279739/34.
P-PSDB; R65154.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 1.0%;
Best Local Similarity 4.5%;
Matches 5; Conservative
          larity 4.5%;
Conservative
                                                                                                                                                                                                                                                                                                                    05-APR-1995 (first entry)
                                                                                                                                                                                                                                                                             standard; DNA; 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-013416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-176500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-189331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              T000D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  30-DEC-1993;
31-JAN-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-FEB-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO9418318-A
                                                                                                                                                                                                                                                                                                                                                                                                                        Synthetic.
                                                                                                                                                                                                                                                        LT 11
Q70468 s
Q70468;
                                                                    m
                             Matches
                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                          ç
                                                                                                                                                   a
                                                                                                                                                                                            g
```

φ

```
070469;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
   Сp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tdentifying proteins or peptide(s) which bind a ligand - by screening a recombinant vector library expressing fusion proteins PT featifying proteins or behalfung domain and an effector domain bisclosure; Page 35; 255pp; English and En
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Generic DNA sequence to generate a random TSAR petide library. TSAR: totally synthetic affinity reagent; synthetic; binding domain; effector domain; concateneated heterofunctional protein; linker; direct; rapid; detection; screening; treatment; generic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /*tag= a
/note= "this sequence represents 'Z'; Z can be
sequence of 6, 9 or 12 nucleotides (see
comments)"
                               1483 CAGCCGGCGCAGGCAGGCCCGCACGAAGCCGTACACCTGCCAGGGGCTGCTG 1432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      63 banbanbanbanbanbanbtgcanbanbanbanbanbanbanbanbanb 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       direct and rapid detection in a screening process Sequence 114 BP; 0 A; 2 C; 2 G; 2 Tr
                                                                                                                                                                                                                                       Location/Qualifiers
                                                                        LT 12
Q70467 standard; DNA; 114 BP.
Q70467;
                                                                                                                                                                                                                                                                                                                                                                                                                                    (UYNC-) UNIV NORTH CAROLINA. Fowlkes DM, Kay BK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity 4.5%;
Matches 5; Conservative
                                                                                                                                  05-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                     01-FEB-1993; US-013416.
30-DEC-1993; US-176500.
31-JAN-1994; US-189331.
                                                                                                                                                                                                                                                                                                                                                                       000977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         34.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 94-2797397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P-PSDB; R65153
                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                    Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
윱
                                 Сp
                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                윱
```

```
The factor of th
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  conformational rigidity to the peptides. The TSARS or compens. comprising a TSAR binding domain can be used in vivo to deliver a chemically or biologically active moiety, eg. metal ion, radioisotope, peptide, toxin or enzyme, to the specific target or on the cell. They can also replace the function of macromolecules, eg. monoclonal or polyclonal antibodies and therefore circumvent the need for complex methods of hybridoma formation or in vivo antibody production. The TSARs are easily characterised and have designed activity allowing direct and rapid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3572 GCGGTGCGGGCTTGGGTGTGGGCCGCCCTCCCTCCTGGGACGTAGAGCCCGGCGTGAC 3513
                                   Generic DNA sequence to generate a random TSAR peptide library.
TSAR: totally synthetic affinity reagent: synthetic; binding domain;
effector domain; concateneated heterofunctional protein; linker;
direct: rapid; detection; screening; treatment; generic; ss.
Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 gcnnbnnbnnbnnbnnbnnbnnbnnbnnbtgcnnbnnbnnbnnbnnbnnbnnbnnnnnn 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                   Ø
                                                                                                                                                                                                                                                                                                                                                                                               þe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3512 AGGGCTGCTGCTCTCTCGGCCTGGCTGGGGGGGGGGCGCCATCAGT 3462
                                                                                                                                                                                                                                                                                                 55..60
/*tag- a
/notes "this sequence represents 'Z'; Z can |
sequence of 6,9 or 12 nucleotides (see
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15.52P-1997 (first entry)

Human endothelin-1 antisense oligonucleotide.

Asthma; airway epithelium; adenosine free; cystic fibrosis;

Chronic obstructive pulmonary disease; bronchitis; ss.

W09640162-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 37; DB 12; Length 114;
Pred. No. 4.11e-06;
32; Mismatches 72; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4
G;
                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4
C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                detection in a screening process.
Sequence 114 BP; 0 A; 4 C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 T 14
T76405 standard; DNA; 178 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JULEC-1993; US-175500.
31-JAN-1994; US-189331.
(UYNC-) UNIV NORTH CAROLINA.
FOWLKES DM, RAV RK.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6.3%;
07-APR-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-013416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 94-279739/34.
                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-FEB-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO9418318-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      T76405;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
TO T7
AC T77
DT 15
DE HU
KW AS
KW Ch
OS SY
WO
```

ö

or 13 O70469 standard; DNA; 114 BP.

1

```
Subject Claim 5; Page 38; 71pp; English.

Claim 5; Page 38; 71pp; English.

C A method for treating airway disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonucleotide (ON) to the airway epithalium of the free antisense oligonucleotide specific of the human endothelio-1, targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary diseases, bronchits and other caliway diseases characterised by an inflammatory response. By eliminating adenosine from the antisense ON, its liberation upon antisense degradation is prevented, thereby preventing adenosine-confined bronchoconstriction in patients with hyper-reactive airways.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                            A method for treating airway disease in a subject has been produced, which involves the topical administration of an essentially adenosine free antisense oligonucleotide (ON) to the airway epithelium of the subject. The present sequence is an antisense oligonucleotide specific for the human endothelin-1, targeted at the initiation codon. The method can be used to treat airway diseases such as cystic fibrosis, asthma, chronic obstructive pulmonary diseases, bronchitis and other airway diseases characterised by an inflammatory response. By eliminating adenosine from the antisense ON, its liberation upon antisense degradation is prevented, thereby preventing adenosine-induced bronchoconstriction in patients with hyper-reactive airways. Sequence 178 BP; O A; 52 C; 46 G; 32 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Gaps
              06-JUN-1996; U09306.
07-JUN-1995; US-474497.
(UYEC-) UNIV EAST CAROLINA.
Metzger WJ. Nyce JW;
WPP: 97-051871/O5.
Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Treatment of airway diseases such as asthma - by topically applying adenosine-free antisense oligo:nucleotide to airway epithelium of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Asthma; airway epithelium; adenosine free; cystic fibrosis; chronic obstructive pulmonary disease; bronchitis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 178;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 178;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 39; DB 32; Length 178
Pred. No. 3.78e-07;
34; Mismatches 17; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 38; DB 32; Length 178
Pred. No. 1.25e-06;
41; Mismatches 40; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human endothelin-1 antisense oligonucleotide.
                                                                                                                                                                               English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 T 15
T76405 standard; DNA; 178 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19-DEC-1996; 009306.
06-JUN-1995; US-474497.
(UYEC-) UNIV EAST CAROLINA.
Metzger WJ, Nyce JW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 1.0%;
Best Local Similarity 30.1%;
Matches 22; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity 31.4%;
Matches 37; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15-SEP-1997 (first entry)
                                                                                                                                                                           Claim 5; Page 38; 71pp;
A method for treating a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cbbbbbcctcccg 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     257 CCGCCCCCGCC 269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 97-051871/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO9640162-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (UYEC-) UNIV
Metzger WJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      T76405;
                                                                                                                                                              subject
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               105
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
```

ö

Gaps

ó

52 cbcccbccgcgctcgbgctcbbgbctgctgtttctggbgctccttggcbbgccb 111

셤

```
ζb
```

112 cbbbcbgcbgbgbbbbtcbtgbgcbbbtbbtccbttctgbbbbbbbggggbtcbbbb 169

g

3525 AGCCCGGCGTGACAGGGCTGCTGGTGCTCTCGGCCTGGCCTGGCGGGTGGCC 3468

Search completed: Fri Dec 25 06:17:23 1998 Job time : 1733 secs.

THIS PAGE BLANK (USPTO)

16 1520 40.0 2171 21 US-08-646 Sequence 100, Applicat 0.00e+00-118 1477 39.4 4200 22 US-08-912 Sequence 6, Application 0.00e+00-109 949 25.0 3496 20 US-08-912 Sequence 6, Application 0.00e+00-109 949 25.0 3496 20 US-08-911 Sequence 6, Application 0.00e+00-109 949 25.0 US-08-911 Sequence 6, Application 0.00e+00-109 949 US-08-911 Sequence 10, Application 0.00e+00-109 949 US-08-911 Sequence 10, Application 0.00e+00-109 949 US-08-911 Sequence 10, Application 0.00e+00-109 949 US-08-911 949 US-08-911	CC CORRESPONDENCE ADDRESS: CC CORRESPONDENCE ADDRESS: CC CITY: Thousand Oaks CC CITY: Thousand Oaks CC COUNTRY: USA CC COUNTRY: USA CC COMPUTER READABLE FLORPY disk CC COMPUTER READABLE FLORPY disk CC COMPUTER: Parentin Release #1.0, Version #1.30 CC COMPUTER: Datentin Release #1.0, Version #1.30 CC COMPUTER: Datentin Release #1.0, Version #1.30 CC COMPUTER: US PROPER: US OB/873,039 FILING DATE: 16-07T-1997 CC CASSIFICATION NUMBER: US OB/873,039 FILING DATE: 11-JUN-1997 CC APPLICATION NUMBER: US OB/751,189 FILING DATE: 15-NOV-196 CC ATTORNEY/AGENT INFORMATION: CC ATTORNEY/AGENT INFORMATION: CC ATTORNEY/AGENT INFORMATION: CC REGISTRATION NUMBER: 34,688 CC REGISTRATION NUMBER: 34,688 CC REGISTRATION NUMBER: 34,688 CC REFERENCE/DOCKET NUMBER: A-433B CC TELECOMMUNICATION INFORMATION: CC REFERENCE/DOCKET NUMBER: A-433B
### Release 3.1A John F. Collins. Biocomputing Research Unit.	Pred. No. 1s the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution. SUMMARIES Result No. Score Match Length DB ID Description 1 3798 100.0 3798 22 US-08-951- Sequence 19, Applicatio 0.00e+00 2 3787 99.7 7029 22 US-08-911- Sequence 1, Applicatio 0.00e+00 3 3784 99.6 4015 22 US-08-912- Sequence 1, Applicatio 0.00e+00 4 3784 99.6 4015 22 US-08-912- Sequence 24, Applicatio 0.00e+00 5 3781 99.6 4015 21 US-08-912- Sequence 24, Applicatio 0.00e+00 6 3784 99.6 4015 21 US-08-912- Sequence 173, Applicatio 0.00e+00 1 3468 91.3 4029 21 US-08-912- Sequence 173, Applicatio 0.00e+00 1 3391 89.3 3855 22 US-08-912- Sequence 173, Applicatio 0.00e+00 1 3391 89.3 3855 22 US-08-912- Sequence 18, Applicatio 0.00e+00 1 3391 89.3 3855 22 US-08-912- Sequence 18, Applicatio 0.00e+00 1 3 1520 40.0 2171 21 US-08-854- Sequence 100, Applicatio 0.00e+00 1 3 1520 40.0 2171 21 US-08-854- Sequence 100, Applicatio 0.00e+00 1 3 1520 40.0 2171 21 US-08-854- Sequence 100, Applicatio 0.00e+00 1 3 1520 40.0 2171 21 US-08-854- Sequence 100, Application 0.00e+00 1 3 1520 40.0 2171 21 US-08-854- Sequence 100, Application 0.00e+00 1 3 1520 40.0 2171 21 US-08-854- Sequence 100, Application 0.00e+00 1 3 1520 40.0 2171 21 US-08-854- Sequence 100, Application 0.00e+00 1 3 1520 40.0 2171 21 US-08-854- Sequence 100, Application 0.00e+00 1 3 1520 40.0 2171 21 US-08-854- Sequence 100, Application 0.00e+00 1 3 1520 40.0 2171 21 US-08-854- Sequence 100, Application 0.00e+00 1 3 1520 40.0 2171 21 US-08-854- Sequence 100, Application 0.00e+00 1 3 1520 40.0 2171 21 US-08-854- Sequence 100, Application 0.00e+00 1 3 1520 40.0 2171 21 US-08-854- Sequence 100, Application 0.00e+00 1 3 1520 40.0 2171 21 US-08-854- Sequence 100, Application 0.00e+00 1 3 1520 40.0 2171 21 US-08-854- Sequence 100, Application 0.00e+00 1 3 1520 40.0 2171 21 US-08-854- Sequence 100, Application 0.00e+00 1 3 1520 40.0 2171 21 US-08-854- Sequence 100, Application 0.

```
ö
                                                                                                                                                                          180
                                                                                                                                                                                         180
                                                                                                                                                                                                         240
                                                                                                                                                                                                                        240
                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                     360
                                                                                                                                                                                                                                                                                                    420
                                                                                                                                                                                                                                                                                                                                   480
                                                                                                                                                                                                                                                                                                                                                                  540
                                                                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           840
                                                                                                                                          120
                                                                                                                                                          120
                                                                                                                                                                                                                                       300
                                                                                                                                                                                                                                                       300
                                                                                                                                                                                                                                                                                                                   420
                                                                                                                                                                                                                                                                                                                                                  480
                                                                                                                                                                                                                                                                                                                                                                                                 900
                                                                                                                                                                                                                                                                                                                                                                                                                009
                                                                                                                                                                                                                                                                                                                                                                                                                                099
                                                                                                                                                                                                                                                                                                                                                                                                                                              099
                                                                                                                                                                                                                                                                                                                                                                                                                                                              720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          900
                                                                                                            9
                                                                                                                           9
                                                                                            Gaps
                                                                                                                                          CCCCGCGATGCCGCGCGCTCCCCGTGCCGAGCCGTGCGCTCCTGCTGCGCACCACTA
                                                                                                                                                                                                                                               CGTGCGCAGCTACCTGCCCAACACGGTGACCGACGCACTGCGGGGGGAGCGGGGCGTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                        CCACGCGTCCGGGCAGCGCTGCGTGCTGCGCACGTGGGAAGCCCTGGCCCGGCCAC
                                                                                                                                                                                                                CCGCGAGGTGCTGCCGCCGCCACGTTCGTGCGGCGCCTGGGGCCCCCAGGGCTGGCGGCT
                                                                                                                                                                                                                                       GCCCTGGGACGCACGGCCCCCCCCCCCCCCCCTCCTTCCGCCAGGTGTCCTGCAAA
                                                                                                                                                                                                                                                                      CTTCGGCTTCGCGCTGCTGGACGGGGCCCCGCGGGGCCCCCCGGAGGCCTTCACCACCAG
                                                                                                                                                                                                                                                                                                                                                                        CCCGGGTGCGAGGAGGCGGGGGGGGGTGCCGAAGTCTGCCGTTGCCCAAGAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAGGCGTGGCGCTGCCCTGAGCCGGAGCGCCCGTTGGGCAGGGGTCCTGGGCCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCACGCGTCCGGGCAGCGCTGCTGCTGCGCACGTGGGAAGCCCTGGCCCGGGCCAC
                                                                                                                                                                           CCGCGAGGTGCTGCCGCTGGCCACGTTCGTGCGGCGCCTGGGGCCCCAGGGCTGGCGGCT
                                                                                                                                                                                                         GGTGCAGCGCGGGGACCCGGCGGCTTTCCGCGCGCTGGTGGCCCAGTGCCTGGTGTGTGCGT
                                                                                                                                                                                                                                                                                                                                                 CTTTGTGCTGGTGGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                               CGGCGCTGCCACTCAGGCCCCGGCCCCCCACACGCTAGTGGACCCCGAAGGCGTCTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGCGAACGGGCCTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGC
                                                                                                                                                                                  ö
                                                                              Length 3798;
                                                                                             Indels
                                                               OTHER
                                                              0
                                                                                           ő
                                                                            Score 3798; DB 22;
Pred. No. 0.00e+00;
0; Mismatches 0;
                                                              ٠,
٦
                                                              662
                                                              :
                                                             1213
                                                              ΰ
                                                     JUE TYPE: CDNA
3798 BP; 613 A; 1310
TELEFAX: (805) 499-8011 INFORMATION FOR SEQ ID NO:
              SEQUENCE CHARACTERISTICS:
LENGTH: 3798 base pairs
TYPE: nucleic acid
                                     STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: CDNA
                                                                            Query Match
Best Local Similarity 100.0%;
Matches 3798; Conservative
                                                              SEQUENCE
                                                                                                                                                         61
                                                                                                                                                                                         121
                                                                                                                                                                          121
                                                                                                                                                                                                        181
                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                 541
                                                                                                                                                                                                                                                                                                                                                                                                               541
                                                                                                                                                                                                                                                                                                                                                                                                                               601
                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                              661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          781
                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         841
88888888888
                                                                                                            ద
                                                                                                                           ŏ
                                                                                                                                          g
                                                                                                                                                        δ
                                                                                                                                                                       셤
                                                                                                                                                                                         ò
                                                                                                                                                                                                     셤
                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                 Qγ
                                                                                                                                                                                                                                                                                                                                                             원
                                                                                                                                                                                                                                                                                                                                                                           ó
                                                                                                                                                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                           윱
                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                           음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8.
```

1140 1200 1260 1500 1680 1020 1020 1080 1080 1140 1200 1260 1320 1320 1380 1380 1440 1440 1500 1560 1560 1620 1680 1740 1740 1800 1860 1920 1980 960 CGTGGGCCGCCAGCACCACGCGGGCCCCCATCCACATCGCGGCCACCACCACGTCCCTGGGA GAGGCTCGTGGAGACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAG GAAGCATGCCAAGCTCTCGCTGCAGGAGCTGACGTGGAAGATGAGCGTGCGGGGACTGCG TTGGCTGCGCAGGAGCCCAGGGGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGA GGAGATCCTGGCCAAGTTCCTGCACTGGCTGATGAGTGTGTACGTCGTCGAGCTGCTCAG GTCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTA CGTGGGCCGCCAGCACCACGCGGGCCCCCCATCCACATCGCGGCCACCACGTCCTGGGA CACGCCTTGTCCCCCGGTGTACGCCGAGACCAAGCACTTCCTCCTACTCCTCAGGCGACAA GGAGCAGCTGCGGCCCTCCTTCCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGTCG GTIGCCCCCCCCCCCCCAGCGCTACTGCCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGG CGAGGAGGAGGACACAGACCCCCGTCGCTGGTGCAGCTGCTCCGCCAGCAGCAGCAGCAGCCC CTGGCAGGTGTACGCCTTCGTGCGGGCCTGCGCCGGCTGGTGCCCCCCAGGCCTCTG GGGCTCCAGGCACAACGAACGCCGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGG GAAGCATGCCAAGCTCTCGCTGCAGGAGCTGACGTGGAAGATGAGCGTGCGGGACTGCGC 1741 1321 1381 1501 1561 1621 1741 1801 1921 1021 1021 1081 1081 1141 1141 1201 1201 1261 1261 1321 1381 1441 1441 1501 1561 1621 1681 1681 1801 1861 1861 1921 961 961 901 901 a d 8 g g g 셤 8 요 셤 셤 셤 g g 원 ö g 셤 δy 9 ò ò ò ò ò Ω δ ò ò ò ò ö δŽ ğ ò

3420

3480

m

80

g

ç

셤

ò

g

δy

g

ò

g ò

ò

ò ద ö ò

ò

ò

ö

ŏ

```
CACGGCCTCCCTCTGCTACTCCATCCTGAAAGCCAAGAACGCAGGGATGTCGCTGGGGGC
                                                                                     CACGGCCTCCCTCTGCTACTCCTGAAAGCCAAGAACGCAGGGATGTCGCTGGGGGC
                                                                                                                                              CCTGCTCAAGCTGACTCGACACGTGTCACCTACGTGCCACTCCTGGGGTCACTCAGGAC
                                                                                                                                                                                  AGCCCAGACGCAGCTGAGTCGGAAGCTCCCGGGGACGACGCTGACTGCCCTGGAGGCCGC
                                                                                                                                                                                                                        AGCCAACCCGGCACTGCCCTCAGACTTCAAGACCATCCTGGACTGATGGCCACCCGCCCA
                                                                                                                                                                                                                                                             CAGCCAGGCCGAGAGCAGACACCCAGCCCTGTCACGCCGGGCTCTACGTCCCAGGGAG
                                                                                                                                                                                                                                                                                                   GGCCGAGGCCTGCATGTCCGGCTGAAGGCTGAGTGTCCGGCTGAGGCCTGAGCGAGTGTC
                                                                                                                                                                                                                                                                                                                                                                             CAGCCAAGGGCTGAGTGTCCAGCACACCTGCCGTCTTCACTTCCCCACAGGCTGGCGCTC
                             GCTCCCATTTCATCAGCAAGTTTGGAAGAACCCCACATTTTTCCTGCGCGTCATCTCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Cech, Thomas R.
APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Chapman, Karen B.
APPLICANT: Chapman, Karen B.
APPLICANT: Andrews, William
APPLICANT: Harley, Calvin B.
APPLICANT: Harley, Calvin B.
APPLICANT: Telomerase Reverse Transcripta NUMBER OF SEQUENCES: 170
CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Crew LLP STREET: Two Embarcadero Center, Eighth Floor CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 1, Application US/08911312
Sequence 1, Application US/08911312
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                UNC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-911-312-1 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          XXXXXX
                                                                                                                                                                                                                                                                                                                                                                                               3661
                                                                                                                                                                                                                                                                                                                                                                                                                  3721
                                                                                                                                                                                                                                                                                                                                                                                                                                    3721
                                                                                                                                                                                                                                                                                                                                                                                                                                                        3781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3781
                                                                                    3181
                                                                                                       3241
                                                                                                                          3241
                                                                                                                                                               3301
                                                                                                                                                                                  3361
                                                                                                                                                                                                    3361
                                                                                                                                                                                                                       3421
                                                                                                                                                                                                                                                            3481
                                                                                                                                                                                                                                                                               3481
                                                                                                                                                                                                                                                                                                   3541
                                                                                                                                                                                                                                                                                                                     3541
                                                                                                                                                                                                                                                                                                                                       3601
                                                                                                                                                                                                                                                                                                                                                          3601
                                                                                                                                                                                                                                                                                                                                                                             3661
          3061
                             3121
                                               3121
                                                                  3181
                                                                                                                                                                                                                                          3421
                                                                                                                                              3301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                         g
                                            ŏ
                                                               g
                                                                                   Ω
                                                                                                      원
                                                                                                                        δ
                                                                                                                                            g
                                                                                                                                                              οy
                                                                                                                                                                               g
                                                                                                                                                                                                   ò
                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                         οy
                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                            . 요
                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                염
                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                      2100
                                                        2100
                                                                           2160
                                                                                                                                                      2280
                                                                                                                                                                                                                                2400
                                                                                                                                                                                                                                                   2400
                                                                                                                                                                                                                                                                      2460
                                                                                                                                                                                                                                                                                                                                                                                     2640
                                                                                                                                                                                                                                                                                                                                                                                                        2640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTTCAAGAGCCACGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGC
                                                                                                                                                                                                                                                                     TCACCTGCAGGAGACCAGCCGCTGAGGGATGCCGTCGTCATCGAGCAGAGCTCCTCCCT
                                                                                                                                                                                                                                                                                                          TTTTGTTCAGATGCCGGCCCACGGCCTATTCCCCTGGTGCGGCCTGCTGCTGGATACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3061 CACCAACATCTACAAGATCCTCCTGCTGCAGGCGTACAGGTTTCACGCATGTGTGCTGCA
                                                                            CICTGIGCIGGGCCIGGACGAIAICCACAGGGCCIGGCGCACCIICGIGCIGCGIGIGCG
                                                                                                                 GCCCCAGGACCCGCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGA
                                                                                                                                                      CACCATCCCCCAGGACAGGCTCACGGAGGTCATCGCCCAGCATCAAACCCCAGAACAC
                                                                                                                                                                                                                                                   CTTCAAGAGCCACGTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGC
                                                                                                                                                                                                                                                                                        TCACCTGCAGGAGCAGCCCGCTGAGGGATGCCGTCGTCATCGAGCAGCAGCTCCTCCT
                                                                                                                                                                                                                                                                                                                                                GCGCATCAGGGCAAGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCTCTC
                                                                                                                                                                                                                                                                                                                                                                                     CACGCTGCTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCG
                                                                                                                                                                                                                                                                                                                                                                                                                           GCGGGACGGGCTGCTCCTGCGTTTGGTGATTTTCTTGTTGGTGACACCTCACCTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCACGCGAAAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAACTTGCGGAAGACAGTGGTGAACTTCCCTGTAGAAGACGAGGCCCTGGGGTGGCACGGC
                                      GAAGGCACTGTTCAGCGTGCTCAACTACGAGCGGGCGGGGGGCGCCCCGGCCTCCTGGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2821
                  1981
                                     2041
                                                        2041
                                                                           2101
                                                                                             2101
                                                                                                                2161
                                                                                                                                   2161
                                                                                                                                                      2221
                                                                                                                                                                       2221
                                                                                                                                                                                         2281
                                                                                                                                                                                                            2281
                                                                                                                                                                                                                                2341
                                                                                                                                                                                                                                                 2341
                                                                                                                                                                                                                                                                    2401
                                                                                                                                                                                                                                                                                       2401
                                                                                                                                                                                                                                                                                                           2461
                                                                                                                                                                                                                                                                                                                            2461
                                                                                                                                                                                                                                                                                                                                               2521
                                                                                                                                                                                                                                                                                                                                                                  2521
                                                                                                                                                                                                                                                                                                                                                                                    2581
                                                                                                                                                                                                                                                                                                                                                                                                       2581
                                                                                                                                                                                                                                                                                                                                                                                                                          2641
                                                                                                                                                                                                                                                                                                                                                                                                                                             2641
                                                                                                                                                                                                                                                                                                                                                                                                                                                               2701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3001
1981
                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                             q
                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   硆
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
```

483

423

1257

543

1317

603

1137

1077

363

303

1377

663

1437

723

1497

1557

843

783

1737 1023 1797

1677

963

903

1857

1917 1203 1977

```
1024 GCCTTGTCCCCCGGTGTACGCCGAAGCCATCTTCTTCTTACTCCTCAGGCGACAAGGA 1083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1084 GCAGCTGCGCCCCCTCCTTCCTACTCAGCTCTCTGAGGCCCAGCCTGGCGCCTGGGGG 1143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1204 GCCCCGCCTGCCCCAGCGCTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAA 1263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1144 GCTCGTGGAGACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1978 CCACGCGCAGTGCCCCTACGGGGTGCTCCTCAAGACGCACTGCCCGCTGCGAGCTGCGGT
244 CIGGGACGCACCGCCCCCCCCCCCCTTCCGCCAGGTGTCTGCTGCCTGAAGGA
                                                                                                                                                                                                                                                                                            IGTGCTGGTGCCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCTCGG
                                                                                                                                                                                                                                                                                                                                                             664 CGAACGGCCTGGAACCATAGCGTCAGGGAGCCCGGGGTCCCCCTGGGCCTGCCACCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1678 GGGCCGCCAGCACCACGCGGGCCCCCATCCACATCGCGGCCACCACCACCTCCTGGGACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGGCTTCGCGCTGCTGGACGGGCCCCGCGGGGCCCCCCCGAGGCCTTCACCACCAGCGT
                                                                                                                                                 364 CGCCTTCGCGCTGCTGGACGGGCCCCCGGGGGGCCCCCCCGAGGCCTTCACCACCAGCTT
                                                                                                                                                                                       GCGCAGCTACCTGCCCAACACGGTGACCGACGCACTGCGGGGGAGCGGGGCGTGGGGGGCT
                                                                                                                                                                                                     GCTGCTGCGCCGCGTGGGGGACGACGTGCTGGTTCACCTGCTGGCACGCTGCGCGCCTCTT
                                                                                                                                                                                                                                                       544 IGIGCIGGIGGCICCCAGCIGCGCCTACCAGGIGIGCGGGCCGCCGCTGTACCAGCICGG
                                                                                                                                                                                                                                                                                                                                                 CGCTGCCACTCAGGCCCGGCCCCCGCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATG
                                                                                                                                                                                                                                                                                                                                                                                                    CGAACGGGCCTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGGTGCGAGGAGGCGCGGGGCAGTGCCAGCCGAAGTCTGCCGTTGCCCAAGAGGCCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1498 GCGTGGCGCTGCCCCTGAGCCGGAGCGGACGCCCGTTGGGGCAGGGGTCCTGGGCCCACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          964 GGGCCGCCAGCACCACGCGGGCCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCTTGTCCCCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1798 GCAGCTGCGGCCCTCCTTCCTACTCAGCTCTGAGGCCCAGCCTGACTGGCGCTCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1858 GCTCGTGGAGACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCCGCAGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCCCGCCTGCCCCAGCGCTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAA
                          1918 (
                                                                                                                                                                                                                                                                                            1258
                                                                                                                                                                                                                                                                                                                                                                                                   1378
                          928
                                                                              1018
                                                                                                                                   1078
                                                                                                                                                                                     1138
                                                                                                                                                                                                               424
                                                                                                                                                                                                                                         1198
                                                                                                                                                                                                                                                                   484
                                                                                                                                                                                                                                                                                                                                                 1318
                                                                                                                                                                                                                                                                                                                                                                                                                                                       1438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                        요
                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                               원
                                                                                                                                                                                                                                                                                                                                                                                                   음
                                                                                                                                                                                                                                                                                                                                                                                                                                                      유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                          유
                                                                                                                                ద
                                                                                                                                                                                   g
                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                    8
                                                                                                         à
                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCGATGCCGCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCAGCCACTACCG 837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCGTCGACGCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCC 777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCATION: 782..4177

COTHER INFORMATION: /product= "human telomerase reverse OTHER INFORMATION: transcriptase (hTRT)"

OTHER INFORMATION: /note= "cDNA contained in plasmid OTHER INFORMATION: pGRN121" cDNA contained in plasmid SEQUENCE 7029 BP; 146 A; 2122 C; 2051 G; 1440 T; 0 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 3787; DB 22; Length 7029;
Pred. No. 0.00e+00;
0; Mismatches 4; Indels 0;
                                 MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
FILING DATE: 14-AUG.1997
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE/DOCKET NUMBER: 015389-002500US
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0077-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
                                                                                                                                                                                                                                                              PRICE APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAX-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAX-1997
PRIOR APPLICATION NUMBER: US 08/912,951
FILING DATE: 14-AUG-1997
PRIOR APPLICATION NUMBER: US 08/912,951
FILING DATE: 14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                   US 08/915,503
                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME: Einhorn, Gregory P. REGISTRATION NUMBER: 38,440
                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 14-AUG-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LENGIH: 7029 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity 99.9%;
Matches 3791; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             single
         ZIP: 94111-3834
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   868
ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
```

3118 CCTGCAG 2404 CCTGCAG	3178 TGAGGCC 	3238 CATCAGG 2524 CATCAGG	3298 GCTGCTC 2584 GCTGCTC	3358 GGACGGG 2644 GGACGGG	3418 CGCGAAA. 2704 CGCGAAA.	3478 CTTGCGG 	3538 TGTTCAG 	3598 CCTGGAGG 1111111 2884 CCTGGAGG	3658 CTTCAAC 2944 CTTCAAC	3718 GCTGAAG 3004 GCTGAAG	3778 CAACATC 3064 CAACATC	3838 CCCATTT 3124 CCCATTT	3898 GGCCTCC 3184 GGCCTCC	3958 GGCGCC 	. 4018 GCTCAAG 3304 GCTCAAG	4078 CCAGACG 3364 CCAGACG	4138 CAACCCG 3424 CAACCCG	4198 ccaggco
op Oy	DP Qy	DD Qy	g &	DD QY	DP QA	oy Oy	Db Qy	Db Qy	ob Oy	QY OY	ф	op Oy	g &	QQ VS	d &	Oy Oy	Oy	qq
		<u> </u>																
A 2097	215	221		233	239	245	251			269	275	281		C 2937 2223		I 3057 I 2343		A 2403
	AGCCCCT		CTGGGGA CTGGGGA CTGGGGA	TGCGCTT(CGTGAGG	CTCAGGT	CGGAAGA	CAGCTGC	CTGACGT	GACTACG	AGGGTGA AGGGTGA	66CGCCTC	GTGCGGG 	TACGACA TACGACA TACGACA	AACACGT AACACGT	AAGGCCT 	GTGGCTC	Greecre
TGTGGCG	GCACAGC	CCCAGGG	CATCTCC	GCGGGAC	CCGTCTG	CGAGCTG	TTTCTAC	GAGGGTG		GAACATG	CACCTCG	CCTCCTG	GCTGCGT	92929999 	ACCCCAG 	CGTCCGC	ACAGIIC	ACAGITIC
CAGGGCTC	CTCCGCCA		AAGAAGTI	ATGAGCGT	SCAGAGCP	TACGTCGT	AGGCTCTT	CACTIGAR	SCCAGGCC	CCGATIGI	GAGCGTCT	0922222	ACCTTCGT	GATGTGAC GATGTGAC	ATCATCAP 	CATGGGCA	TACATGCG	TACATGC
GAAGCCCC GAAGCCCC	GCAGCTGC	00000000000000000000000000000000000000	GAACACC	GTGGAAG2 GTGGAAG2	TCCGGCC	GAGTGTGT	AAAGAAC	CAGACAG	TCGGGAAC	GCTGCGG	GAGGGCC	11111	CTGGCGC	CAAGGTG	CGCCAGC		CCAGCCG	CCAGCCG
CCCGGGA	GCCTGGT		TCCTCAG	AGCTGAC	GCTGTGT	GGCTGAT	CGTTTCA	TTGGAAT	GGCAGCA	CTGACGG	GAGAAAA 	ACGAGCG	ACAGGGC	ACTITGI	AGGTCAT	TCCAGAA TCCAGAA	CAGACCT	CAGACLI
GTCTGTG	111111 1111111	00000000000000000000000000000000000000	1111111 111111111111111111111111111111	CTGCAGG	0.0000000000000000000000000000000000000	CTGCACT	GAGACCA	CAAAGCA	GAGGTCP	CCCAAGO	TTCCGC	SCTCAACT	GATATCC	GAGCTG1	SCTCACGO	16CCGTGC	PACCTIGA 	racci re
2AGCCGG7 1111111	ACACAGAC	ACGGCTTC	ACAACGAA	AGCTCTCC	3GAGCCC	CAAGTTC	ATGTCACC	SCAAGITC	GGAAGC2	SCTTCATO	CCAGAACC	PCAGCGT(SCCTGGAC	11111	AGGACAGO	STCGGTA:	ACGTCTC:	ACGICIC
CACCCCAGCAGCCGGTGTCTGTGCCCGGGAGAAGCCCCAGGGCTCTGTGGGGGCCCCCCGA	GGAGGAGGACACAGACCCCCGTCGCTGGTGCAGCTGCTCCGCCAGCACAGCAGCCCTG	CARGITGTANGGCTTCGTGCGGGTCTGCTGCCGGCTGGTGCCCCCAGGCTTCTGGGGTGCTCCTCGGGGTTTCTTGGGGTTTTTGTTTTTGGGGGTTTTTT	CTCCAGGCACAACGAACGCCGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAACACCAAGAACACAAGACACACAACAACACACAACA	GCATGCCAACCTCTCCCTGCAGGAGCTGAGGAGGAGGAGGGGGGGACTGCGCTTG 	GCTGCGCAGGAGCCCAGGGGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGA	GEIGGGGGAGAGTICCIGGATIGGGGGGGGGGGGGGGGGGGG	TITCIIIIAIGECCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	TGTCTGGAGCAAGTGCCAAAGCATTGGAATCAGACAGCGTCTTGTTCTACCGGAAAAG TGTCTGGAGCAAGTTGCAAAGCATTGGAATCAGACACTTGAAGAGGGGTGCAGCTGCG	GGAGCTGTGGGAAGCAGAGGTCAGGAACATGGAAGCCAGGCCGGCC	CAGACTCCGCTTCATCCCCAAGCCTGACGGCTGCGGCCGATTGTGAACATGGACGACGT 	CGTGGGAGCCAGAACGTTCCGCAGAGAAAGAGGCCGAGCGTCTCACCTCGAGGGTAAA 	GGCACTGTTCAGCGTGCTCAACTACGAGCGGGCGCGGCGCCCCGGCCTCCTGGGCGCCCTTTTTTTT	TGTGCTGGGCCTGGACGATATCCACAGGCCTGGCGCACCTTCGTGCTGCGTGTGCGGGCTGTGTGTG	CCAGGACCCGCCGCTGAGCTGTACTTGTCAAGGTGGATGTGACGGGCGGG	CATCCCCAGGACAGGCTCACGGAGGTCATCGCCAGCATCAACCTCAAACCCCAGAACAGTA [111111111111111111111111111111111111	CTGCGTGCGTCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCCTT T11111111111111111111111111111111	CAAGAGCCACGTCTCTACCTTGACAGCCTCCAGCCGTACATGCGACAGTTCGTGGCTCA	AAGAGCC
2038 C														2878 C		2998 C 2284 C		
원 ô	a à	3 A S	3 A S	90 A	2 8 8	2 8 8	2 8 8	S 8 8	6 8 8	g . 8	6 G	g &	90 YO	g ò	6 B	g &	· A :	Š

CTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCGGCG GCTGCTCCTGCGTTTGGTGGATGATTCTTGTTGGTGGTGACACCTCACCTCACCCA AACCTICCICAGGACCCIGGICCGAGGIGTCCCIGAGIAIGGCIGCGIGGIGAA GGTGCAGAGCGACTACTCCAGCTATGCCCGGACCTCCATCAGAGCCAGTCTCAC CTACAAGATCCTCCTGCTGCAGGCGTACAGGTTTCACGCATGTGTGCTGCAGCT ICATCAGCAAGTTTGGAAGAACCCCACATTTTTCCTGCGCGTCATCTCTGACAC CCTCTGCTACTCCATCCTGAAAGCCAAGAACGCAGGGATGTCGCTGGGGGCCAA CGCCGGCCCTCTGCCCTCCGAGGCCGTGCAGTGGCTGTGCCACCAAGCATTCCT GGCACTGCCCTCAGACTTCAAGACCATCCTGGACTGATGGCCACCCGCCCACAG SGGCAAGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCCAC CTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCGGCG SCTGCTCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCACCCA SAAGACAGTGGTGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGGCTTT GATGCCGGCCCACGGCCTATTCCCCTGGTGCGGCCTGCTGCTGGATACCCGGAC GGTGCAGAGCGACTACTCCAGCTATGCCCGGACCTCCATCAGAGCCAGTCTCAC CTACAAGATCCTCCTGCTGCAGGCGTACAGGTTTCACGCATGTGTGCTGCAGCT GCTGACTCGACACCGTGTCACCTACGTGCCACTCCTGGGGTCACTCAGGACAGC GCAGCTGAGTCGGAAGCTCCCGGGGACGACGCTGACTGCCCTGGAGGCCGCAGC

```
g
   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
3664 CCAAGGCCTGAGTGTCCAGCACACCTGCCGTCTTCACTTCCCCACAGGCTGGCGCTCGGC 3723
                                                                                                                                                                     3724 TCCACCCAGGCCAGCTTTCCTCACCAGGAGCCCGGCTTCCACTCCCCACATAGGAAT 3783
                                                                        CGAGGCCTGCATGTCCGGCTGAAGGCTGAGTGTCCGGCTGAGGCCTGAGCGAGTGTCCAG 4377
                                                                                                                                                                                                                                                                                                                           APPLICANT: Cach, Thomas R. APPLICANT: Cach, Thomas R. APPLICANT: Lingner, Joachim APPLICANT: Indoner, Joachim APPLICANT: Nakamura, Toru APPLICANT: Or Lapman, Toru APPLICANT: Morin, Gregg B. APPLICANT: Harley, Calvin B. APPLICANT: Harley, Calvin B. APPLICANT: Andrews, William H. TITLE OF INVENTION: Antisense Compositions for Detecting and TITLE OF INVENTION: Inhibiting Telomerase Reverse Transcriptase CORRESPONDENCES: 72

ADDRESSEE: Townsend and Townsend and Crew LLP
                              CGAGGCCTGCATGTCCGGCTGAAGGCTGAGTGTCCGGCTGAGGCCTGAGCGAGTGTCCAG
                                                                                                                  CCAAGGGCTGAGTGCCAGCACACGTGCTGTCACTTCCCCACAGGCTGGCGCTCGGC
                                                                                                                                                           TCCACCCCAGGGCCAGCTTTTCCTCACCAGGAGCCCGGCTTCCACTCCCCACATAGGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARES: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/052,919
FILING DATE: 31-MAR-1998
CLASSIFCATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-OCT-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
FILING DATE: 25-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE: Townsend and Townsend and Crew LLP STREET: Two Embarcadero Center, Eighth Floor CITY: San Francisco
                                                                                                                                                                                                                                                                   BP
                                                                                                                                                                                                                                                       JT 3
US-09-052-919-1 STANDARD; DNA; UNC; 4015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                               Sequence 1, Application US/09052919
Sequence 1, Application US/09052919
GENERAL INFORMATION:
                                                                                                                                                                                                    AGTCCATCCCAGAT 4512
                                                                                                                                                                                                               AGTCCATCCCTGAT 3798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ZIP: 94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STATE:
                                                                                                                                                                                                                                                                             XXXXXX
                                                                        4318
                                                                                             3604
                                                                                                                  4378
                                                                                                                                                                                                                       3784
                                                                                                                                                          4438
                                                                                                                                                                                                   4498
                                                                                                                                                                                                                                                      요
            ò
                                음
                                                     ò
                                                                       셤
                                                                                             õ
                                                                                                                원
                                                                                                                                      ò
                                                                                                                                                          셤
                                                                                                                                                                               ò
                                                                                                                                                                                                                       à
```

```
CCGAGTGCTGCAGAGGCTGTGCGAGCGCGCGAAGAACGTGCTGGCCTTCGGCTTCGC 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61 GCGCGCTCCCCGCTGCCGAGCCGTGCGTCCCTGCTGCGCAGCCACTACCGCGAGGTGCT 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 GCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCCGCGATGCC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13 GCAGCGCTGCGTGCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGGCACCCCGGGGATGCC 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          73 GCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCCTGCTGCGCAGCCACTACCGCGAGGTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCGCTGGCCACGTTCGTGCGGCGCCTGGGGCCCCAGGGCTGGCGGCTGGTGCAGCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              133 GCCGCTGGCCACGTTCGTGCGCGCCCTGGGGCCCCAGGGCTGGCGGCTGGTGCAGCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCGAGTGCTGCAGAGGCTGTGCGAGCGCGGCGCGAAGAACGTGCTGGCCTTCGGCTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTGCTGGACGGGCCCCGCGGGGCCCCCCGGAGGCCTTCACCACCAGGTGCGCAGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCATION: 56.3454
OTHER INFORMATION: /Product= "human telomerase reverse OTHER INFORMATION: transcriptase (htm?)"
SEQUENCE 4015 BP; 663 A; 1363 C; 1275 G; 714 T; 0 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 4015;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME: Parent, Annette S.
REGISTRATION NUMBER: 42,058
REFENCE/DOCKET NUMBER: 015389-003600US
TELEPHONE: (415) 576-0200
TELEPHONE: (415) 576-0300
INFORMATION FOR SEQ ID NO: 1: SEQUENCE CHARACTERISTICS:
LENGTH: 4015 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 3784; DB 24;
Pred. No. 0.00e+00;
                                                                                                                                                                                                                           FILING DATE: 19-NOV-1997
PRIOR APPLICATION NUMBER: US 08/974,584
FILING DATE: 19-NOV-1997
PRIOR APPLICATION NUMBER: WO PCT/US97/17618
FILING DATE: 01-OCT-1997
PRIOR APPLICATION NUMBER: WO PCT/US97/17618
FILING DATE: 01-OCT-1997
PRIOR APPLICATION NUMBER: WO PCT/US97/17885
FILING DATE: 01-OCT-1997
ATTORNEY AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Mismatches
                                                              APPLICATION NUMBER: US 08/912,951
FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/915,503
FILING DATE: 14-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/974,549
FILING DATE: 19-NOV-1997
APPLICATION NUMBER: US 08/911,312
FILING DATE: 14-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity 100.0%;
Matches 3785; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: nucleic acid
STRANDEDNESS: single
                                             PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY: linear MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   373
```

ö

1513 CAACGAAC 1513 CAACGAAC 1561 GCTCTCGC	1 GAG	1681 CAAGTTCC 1693 CAAGTTCC		13 - 0			1981 CAGAACG7 1993 CAGAACG7		2101 CCTGGACC 		2221 GGACAGGG 2233 GGACAGGG	281 1 293 1	2341 CGTCTCTV 	2401 GACCAGCC 	2461 CAGTGGCC 	2521 CAAGTCCT 2533 CAAGTCCT 2581 CAGCCTGT	
o o	o a c	Db Qy	oy Oy	Oy Oy	QV QY	QQ Vy	oy B	oy ob	oy B	원	Oy Oy	oy b	oy ob	oy ob	oy oy	Oy Oy	
•		=												 			
						٠							•				
480 492 540	552 600	660	720	780	840 852	900	960	1020	1080	14	1200	1260	1320	1380	1440	1500 1512 1560	
GCTGCG 	GCTGGT	ACGGGC	TGCGAG 	166CGC	CAGGAC 	AGAAGC AGAAGC	CCGCCA	1191CC 	GCTGCG	CGTGGA 		CGCGCA	CCCAGC	GGAGGA GGAGGA	GGTGTA 	CAGGCA CAGGCA NTGCCAA	
CCTGCCCAACACGGTGACCGACGCACTGCGGGGGAGCGGGGGGGG	CCGCGTGGGCCGACGTGCTGGTTCACCTGCTGGCAGCTGCGGCGCTCTTTGTGCTGG GGCTCCCAGCTGCGCCTGCTGCGGCCGCCGCTGTACCAGCTCGGCGCTGCCAC	NOTICE AND THE RECORD OF THE REPORT OF THE T	CTGGAACCATAGCGTCAGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCCCGGGTGGGGGGGG	GAGGCGCGGGGGCAGTGCCAGCCGAAGTCTGCCGTTGCCCAAGAGGCCCAGGCGTGCGCGCGC	TGCCCTGAGCCGGAGCGGACGCCCGTTGGGCAGGGGTCTGGGCCCACCGGGCAGAC	GCGTGGACCGAGTGACCGTGGTTTCTGTGTGTCACCTGCCAGACCCGCCGAAGAAGC 	CACCTCTTTGGAGGGTGCGCTCTCTGGCACGCGCCACTCCCACCCA	GCACCACGCGGGGCCCCCATCCACATCGGGGCACCACGTCCCTGGGACACGCCTTGTCC	CCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGACAAGGACAGCTGCG 	GCCTCCTTCCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGAGGGCTCGTGGA 	GACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCGCGT 	GCCCCAGCGCTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCA 	GTGCCCCTACGGGGTGCTCCTCAAGACGCACTGCCGGTGCGAGCTGCGGTCACCCCAGC	GTCTGTGCCCGGGAGAAGCCCCAGGGCTCTGTGGCGGCCCCCGAGGAGAAGA 	CACAGACCCCGGTCGCTGGTGCAGCTGCTCCGCCAGCACAGCAGCCCCTGGCAGGTGTA 	CGGCTTCGTGCGGGCCTGCGCCGGCTGGTGCCCCCAGGCCTCTGGGGCTCCAGGCA 11111111111111111111111111111111	
GCGTGGG 	TGCGCGC	TACCAGO CGTCTGG	CTGCCAG	AAGAGGC	11666CCC 111111 11666CCC	GCCAGAC	CACCCAT	05513333	AGCGACA 	GGCGCTC	20000000000000000000000000000000000000	CTGCTTC	CGAGCTC	000000000000000000000000000000000000000	AGCAGCC AGCAGCC	AGGCCTC1 AGGCCTC7	
GGCACGC	GCCGCTG	CCGAAGG	09991333	11111111111111111111111111111111111111	1	GTCACCI	SCACTCC	ACCACG1	ACTCCTCA 	SCTGACT	AGGGACT	TTCTGGAC	3CCCGCTC	SCTCTGTC	SCCAGCAC	GCCCCC 	
TGCGGGC TGCGGGC TGCGGGC	ACCTGCT		666TCC	GTCTGCC	TTGGGCZ	GTGTGG	GCACGCC		TCCTCT	AGGCCCAC AGGCCCAC	GGATGCC	CCCTGT	ACGCACTO	CCCAGG(TGCTCC(GGCTGG:	
CCTGCCCAACACGTGACGACGCACTGCGGGG 	CTGGTTC	CACGCTA	GAGGCCG	AGCCGAP AGCCGAP	ACGCCCG	GGTTTCT	CTCTCTG	TCCACAT	AAGCACT	TCTCTGP	AGGCCCT 	ATGCGGC ATGCGGC	CTCAAGA 	GAGAAGO GAGAAGO	GTGCAGC	CTGCGCC CTGCGCC	
GGTGACC 	CGACGTG		CGTCAGG	CAGTGCC CAGTGCC	GGAGCGG GGAGCGG	TGACCGI TGACCGI	GGGTGCG	CCCCCCA	CGAGACC	ACTCAGO ACTCAGO	GGGTTCC	CTGGCAA 	GGTGCTC 	TGCCCGG	TCGCCTG	GGCCTGC	
CCAACAC CCAACAC 	resecta CCAGCTG		ACCATAG 	3CGGGGG -	CTGAGCC CTGAGCC	SACCGAG SACCGAG	CTTTGGA CTTTGGA	ACGCGGG 	TGTACGC TGTACGC	CTTCCT	TCTTTCT 	AGCGCTA AGCGCTA	CCTACGG 	GTGTCTG GTGTCTG	ACCCCG 	TCGTGCG TCGTGCG	
		9 H-H	0-0											1 AGCCGGTG 3 AGCCGGTG		0-0 0	
. 421 433 481	541	553 601 613	661	721	781	841	901	961	102	108	114	120	126	132	138	144 145 150	
පු දු ජු	6 6 6	6 6 6	6 6	å å	g &	g S	g &	g &	o O	9 b	g O	g S	9 9 8	g o	da Qy	8 & 8 6 & 8	

٠.

CCTGCACTGGCTGATGAGTGTACGTCGTCGAGCTGCTGCTGCTGTTTTA AGAGGTCAGGCACCATCGGGAAGCCAGGCCCGCCTGCTGACGTCCAGGTCCCGGACTCCGGACTCCGGAAGCCAGGCCGCCCTGCTGACGTCACGCCAGGCCCGCCTGCTGACGTCCAGGCCCG SCICAACTACGAGCGGGGCGGCCCCGGCCTCTGGGCCTCTGTGCTGGG CCGCTGAGGGAIGCCGTCGTCATCGAGCAGAGCTCCTCCCTGAATGAGGCCAG CATATCCACAGGGCCTGGCGCACCTTCGTGCTGCTGCGGGCCCCAGGACCC GTGCTACGGCGACATGGAGAACAAGCTGTTGCGGGGGATTCGGCGGGACGGGCT AGGGTTGGCTGTGTTCCGGCCGCAGACACCGTCTGCGTGAGGAGATCCTGGC SCAAAGCATTGGAATCAGACACACTTGAAGAGGGTGCAGCTGCGGGAGCTGTC CCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGAGC PACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTGCAGGA CTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGTGCGCATCAGGGG

œ

```
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-OCT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                             California
: United States of America
                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                               US-08-912-951-1 STANDARD; DNA; UNC;
                                                                                                                         Sequence 1, Application US/08912951
Sequence 1, Application US/08912951
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELECOMMUNICATION INFORMATION:
                                                                                                                                                    APPLICANT: Cech, Thomas R.
APPLICANT: Linguer, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Chapman, Karen B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEPHONE: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 4015 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Apple, Randolph T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Randolph
                                                                                                                                                                                                                                                              CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME: Apple, Rand
REGISTRATION NUMBER
                                           3781 CCAGAT 3786
                                                             CCTGAT 3798
                                                                                                          XXXXXX
          3721
                                                             3793
                                                                                       g
                          ò
                                                             à
                                                                                       2820
                                                                                                                                                             2940
                                                                                                                                                                                                                                                                                                                                                                           GACTCGACACCGTGTCACCTACGTGCCACTCCTGGGGTCACTCAGGACAGCCCAGACGCA 3360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3480
                                                                                                                                                                                                      GCTGAGTCGGAAGCTCCCGGGGACGACGCTGACTGCCCTGGAGGCCGCAGCCCAGCCCGGC 3420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2593 CAGCCTGTGCTACGCGACATGGAGAACAAGCTGTTTGCGGGGATTCGGCGGACGGGCT 2652
                                                                                                                                                                    3180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGTGTCCAGCACACCTGCCGTCTTCACTTCCCCACAGGCTGGCGCTCGGCTCCACCCCA 3720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGTGAACTTGCGGAA
                                                            GCCGCCCACGACCTATTCCCCTGGTGCGGCCTGCTGCTGGTGGATACCCGGACCCTGGAGGT
                                                                                                                                                                                               CGGCTTCAAGGCTGGGAACATGCGTCGCAAACTCTTTGGGGGTCTTGCGGCTGAAGTG
                                                                                                                                                                                                                                 TCACAGCCTGTTTCTGGATTTGCAGGTGAACAGCCTCCAGACGGTGTGCACCAACATCTA
                                                                                                                                                                                                                                                                                                      TCAGCAAGTTTGGAAGAACCCCACATTTTTCCTGCGCGTCATCTCTGACACGGCCTCCCT
                                                                                                                                                                                                                                                                                                               CACACCCAGGCCCGCACCGCTGGGGTCTGAGGCCTGAGTGTTTGGCCGAGGCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CATGTCCGGCTGAAGGCTGAGTGTCCGGCTGAGGCCTGAGCGAGTGTCCAGCCAAGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCACCCACGCGAAAAC
                                                                                      GACAGTGGTGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGGCTTTTGTTCAGAT
                                                                                                                                           GCCGCCCCACGCCTATTCCCCTGGTGCGCCTGCTGCTGGATACCCGGACCCTGGAGGT
                                                                                                                                                           GCAGAGCGACTACTCCAGCTATGCCCGGACCTCCATCAGAGCCAGTCTCACCTTCAACCG
                                                                                                                                                                                                                                                                    CAAGATCCTCCTGCTGCAGGCGTACAGGTTTCACGCATGTGTGCTGCAGCTCCCATTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACTGCCCTCAGACTTCAAGACCATCCTGGACTGATGGCCACCCGCCCACAGGCCAGGCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3193
                                                                                                                                                                                                                                                                                                                                                                                                                               3313
                                                                    2713
                                                                                                       2773
                                                                                                                                          2833
                                                                                                                                                                           2893
                                                                                                                                                                                                                2953
                                                                                                                                                                                                                                3001
                                                                                                                                                                                                                                                   3013
                                                                                                                                                                                                                                                                                                                        3133
                                                                                                                                                                                                                                                                                                                                                                            3241
                                                                                                                                                                                                                                                                                                                                                                                             3253
                                                                                                                                                                                                                                                                                                                                                                                                             3301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3613
                                  2653
                                                    2701
                                                                                      2761
                                                                                                                         2821
                                                                                                                                                            2881
                                                                                                                                                                                              2941
                                                                                                                                                                                                                                                                                    3073
                                                                                                                                                                                                                                                                                                      3121
                                                                                                                                                                                                                                                                                                                                         3181
                                                                                                                                                                                                                                                                                                                                                                                                                                                 3361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3673
                  2641
                                                                                                                                                                                                                                                                     3061
                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                ద
                                                  g
                                                                    ŏ
                                                                                    셤
                                                                                                     à
                                                                                                                      셤
                                                                                                                                         οy
                                                                                                                                                          g
                                                                                                                                                                        ŏ
                                                                                                                                                                                                               ö
                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                               QΥ
                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                           οχ
                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö,
```

```
DIAGNOSTIC AND
3733 GGGCCAGCTTTTCCTCACCAGGAGCCCGGCTTCCACTCCCCACATAGGAATAGTCCATCC 3792
                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Linger, Joachim
APPLICANT: Linger, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Chapman, Karen B.
APPLICANT: Chapman, Gregg B.
APPLICANT: Harley, Calvin
APPLICANT: Andrews, William H.
TITLE OF INVENTION: THERAPEUTIC METHODS
NUMBER OF SEQUENCES: 335
CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, 8th Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/912,951 FILING DATE: 14-40G-1997 CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 015389-002600US
                                                                                                                                                                                                                      BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
CLASSIPICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
                                                                                                                                                                                                                      4015
```

1212 1260 1272 1320

1080

1020

912 960 972

σ

.rnp

```
CTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGGAGC
                                    GCCCTCCTTCCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGGA
                                                                                                                                            GACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCGCCT
                                                                                                                                                    CGGCTTCGTGCGGGCCTGCGCCGGCTGGTGCCCCCCAGGCCTCTGGGGCTCCAGGCA
                                                                                                                                                                                                                                                                                                                  CAACGAACGCCGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAA
                                                                                                                                                                                                                                                                                                                                              GCTCTCGCTGCAGCAGCTGACGTGGAAGATGAGCGTGCGGGACTGCGCTTGGCTGCGCAG
                                                                                                                                                                                                                                                                                                                                                     GCGTGGACCGAGTGACCGTGGTTTCTGTGTGTGTCACCTGCCAGACCCGCGGAAGAGC
                                                        GCACCACGCGGGCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTCC
                                                                                     CCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCG
                GCGTGGACCGAGTGACCGTGGTTTCTGTGTGTGTCACCTGCCAGACCCGCCGAAGAAGA
                             GAGCCCAGGGGTTGGCTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGGC
                                           913
                                                                                                                                                         1153
                                                                                                                                                                                     1213
                                                                                                                                                                                                                 1273
                                                                                                                                                                                                                                             1333
                                                                                                                                                                                                                                                                        1393
                                                                                                                                                                                                                                                                                                   1453
                                                                                                                                                                                                                                                                                                                                1513
                                                                                                                                                                                                                                                                                                                                              1561
                                                                                                                                                                                                                                                                                                                                                            1573
                                                                                                                                                                                                                                                                                                                                                                                                                  1693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1813
                853
                                                                      973
                                                                                     1021
                                                                                                   1033
                                                                                                                1081
                                                                                                                              1093
                                                                                                                                            1141
                                                                                                                                                                       1201
                                                                                                                                                                                                   1261
                                                                                                                                                                                                                               1321
                                                                                                                                                                                                                                                          1381
                                                                                                                                                                                                                                                                                      1441
                                                                                                                                                                                                                                                                                                                  1501
                                                                                                                                                                                                                                                                                                                                                                          1621
                                                                                                                                                                                                                                                                                                                                                                                       1633
                                                                                                                                                                                                                                                                                                                                                                                                    1681
                                                                                                                                                                                                                                                                                                                                                                                                                                1741
                                                                                                                                                                                                                                                                                                                                                                                                                                              1753
                                                                                                                                                                                                                                                                                                                                                                                                                                                             1801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1921
                             901
                                                        196
                         8
                                                       a
                                                                                  g
                                                                                                             9
                                                                                                                                        셤
                                                                                                                                                                   8
                                                                                                                                                                                                원
                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                               엄
                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                       용
                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
  윰
              à
                                       õ
                                                                      ò
                                                                                                  ò
                                                                                                                         ŏ
                                                                                                                                                         ò
                                                                                                                                                                                  ò
                                                                                                                                                                                                                                           ò
                                                                                                        ö
                                                                                                                                                   120
                                                                                                                                                               132
                                                                                                                                                                              180
                                                                                                                                                                                           192
                                                                                                                                                                                                         240
                                                                                                                                                                                                                       252
                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                   312
                                                                                                                                                                                                                                                                 360
                                                                                                                                                                                                                                                                               372
                                                                                                                                                                                                                                                                                            420
                                                                                                                                                                                                                                                                                                          432
                                                                                                                                                                                                                                                                                                                         480
                                                                                                                                                                                                                                                                                                                                      492
                                                                                                                                                                                                                                                                                                                                                    540
                                                                                                                                                                                                                                                                                                                                                                  552
                                                                                                                                                                                                                                                                                                                                                                                900
                                                                                                                                                                                                                                                                                                                                                                                             612
                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                         672
                                                                                                                                                                                                                                                                                                                                                                                                                                       720
                                                                                                                                                                                                                                                                                                                                                                                                                                                     732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             852
                                                                                                                    GCAGCGCTGCGTCCTCCTGCGCACGTGGGAAGCCCTGGCCCGGGCCACCCCGGGATGCC 60
                                                                                                         Gaps
                                                                                                                                                GGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCGGTGTACCAGCTCGGCGCTGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                              GCTGCTGGACGGGGCCCGGGGGGCCCCCCGAGGCCTTCACCACCAGCGTGCGCAGCTA
                                                                                                                                                                                                                                                                                                                                CTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCTGGGCCTGCCAGCCCCGGGTGCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGCCCCTGAGCCGGAGGGACGCCCGTTGGGCAGGGGTCCTGGGCCCACCCGGGCAGGAC
                                                                                                                                                                             GCCGCTGGCCACGTTCGTGCGGCCCTGGGGCCCCAGGGCTGGCGGCGGCGG
                                                                                                                                                                                                         GGACCCGGCGCTTTCCGCGCGCGCTGGTGCCCTGGTGTGCGTGCCTGGGACGC
                                                                                                                                                                                                                                     CCGAGIGCTGCAGAGGCTGTGCGAGCGCGCGCGAAGAACGTGCTGGCCTTCGCTTCGC
                                                                                                                                                                                                                                                                                                                        TCAGGCCCGGCCCCCCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGGCGCGGGGCAGTGCCAGCCGAAGTCTGCCGTTGCCCAAGAGGCCCAGGCGTGGCGC
                                                        OTHER INFORMATION: /note= "human telomerase reverse OTHER INFORMATION: transcriptase (hTRT) catalytic protein OTHER INFORMATION: component" SEQUENCE 4015 BP: 663 A; 1363 C; 1275 G; 714 T; 0 OTHER.
                                                                                                      0;
                                                                                           4015;
                                                                                                        Indels
                                                                                           Length
                                                                                          Score 3784; DB 22;
Pred. No. 0.00e+00;
0; Mismatches 1.
                                                /product- "hTRT
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: CDNA
FEATURE:
                                                                                          Match 99.6%;
Local Similarity 100.0%;
les 3785; Conservative
                                  NAME/KEY: CDS
LOCATION: 56..3454
OTHER INFORMATION: OTHER INFORMATION: OTHER INFORMATION: OTHER INFORMATION: OTHER INFORMATION: O
                                                                                                  Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                        613
                                                                                                                                   13
                                                                                                                                                                             121
                                                                                                                                                                                                         181
                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                         373
                                                                                                                                                                                                                                                                                                                                      133
                                                                                                                                                                                                                                                                                                                                                                  193
                                                                                                                                                                                                                                                                                                                                                                                             553
                                                                                                                                                                                                                                                                                                                                                                                                                                                    673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             793
                                                                                                                                                 61
                                                                                                                                                               73
                                                                                                                                                                                           133
                                                                                                                                                                                                                       193
                                                                                                                                                                                                                                                   253
                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                               313
                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                                                                                                                                                                      661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              781
                                                                                            Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
888888888888888
                                                                                                                                                g
                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                        8 8
                                                                                                                                                                                                                                                                                                                     요
                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                           임
                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                    요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                      셤
                                                                                                                                   ö
                                                                                                                                                               ò
                                                                                                                                                                          셤
                                                                                                                                                                                          ò
                                                                                                                                                                                                       유
                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                ç
                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                        å
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            å
                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                             ô
```

1440

1452 1500 1512

1380

1392

1332

1560

1572 1620 1632 1680 1692 1740

1752

1860 1872 1920 1932

3180 3192 3240

3252

3360 3372 3420

```
TCACAGCCTGTTTCTGGATTTGCAGGTGAACAGCCTCCAGACGGTGTGCACACCATCTA
                       CAAGATCCTCCTGCTGCAGGCGTACAGGTTTCACGCATGTGTGCTGCTGCAGCTCCCATTTCA
                                                                                                                CAAGATCCTCCTGCTGCAGGCGTACAGGTTTCACGCATGTGTGCTGCAGCTCCCATTTCA
                                                  TCAGCAAGITIGGAAGAACCCCACAITITITCCTGCGCGTCAICTCTGACACGGCCTCCCI
                                                          GCTGAGTCGGAAGCTCCCCGGGGACGCTGACTGCCCTGGAGGCCGCAGCCAACCCGGC
                                                                                                                                                                                                                                                         CATGTCCGGCTGAAGGCTGAGTGTCCGGCTGAGGCCTGAGCGAGTGTCCAGCCAAGGGCT
                                                                                                                                                                                                                                                                                                                         GAGTGTCCAGCACACCTGCCGTCTTCACTTCCCCACAGGCTGGCGCTCGGCTCCACCCCA
                                                                                  CTGCTACTCCATCCTGAAAGCCAAGAACGCAGGGATGTCGCTGGGGGCCAAGGGCGCCGC
                                                                                                                                                                                                                ACTGCCCTCAGACTTCAAGACCATCCTGGACTGATGGCCACCCGCCCACAGCCAGGCCGA
                                                                                                                                                                                                                                                GCTGAGTCGGAAGCTCCCGGGGACGACGCTGACTGCCCTGGAGGCCGCAGCCAACCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Crew
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Cech, Thomas R.
APPLICANT: Linguer, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Nakamura, Toru
APPLICANT: Manura, Toru
APPLICANT: Morin, Gregg B.
APPLICANT: Morin, Gregg B.
APPLICANT: Andrews, William H.
TILLE OF INVENTION: Novel Telomerase
UNDBER OF SEQUENCES: 225
CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4015
                                                                                                                                                                                                                                                                                                                                                                                                                                                         T 5
US-08-854-050-224 STANDARD; DNA; UNC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 224, Application US/08854050 Sequence 224, Application US/08854050 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                CCTGAT 3798
                                                                                                                                                                                                                                                                                                                                                                                                                 CCAGAT 3786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        XXXXXX
                                                                 3133
                                                                                                                                  3253
                                                                                                                                                                3313
                                                                                                                                                                                                3373
                                                                                                                                                                                                                3421
                                                                                                                                                                                                                                3433
                                                                                                                                                                                                                                                 3481
                                                                                                                                                                                                                                                                 3493
                                                                                                                                                                                                                                                                                3541
                                                                                                                                                                                                                                                                                                3553
                                                                                                                                                                                                                                                                                                                3601
                                                                                                                                                                                                                                                                                                                                3613
                                                                                                                                                                                                                                                                                                                                                 3661
                                                                                                                                                                                                                                                                                                                                                                3673
                                                                                                                                                                                                                                                                                                                                                                                 3721
                                                                                                                                                                                                                                                                                                                                                                                                 3733
                                                                                                                                                                                                                                                                                                                                                                                                                 3781
                                                                                                                                                                                                                                                                                                                                                                                                                                 3793
3013
                 3061
                                 3073
                                                3121
                                                                                 3181
                                                                                                3193
                                                                                                                 3241
                                                                                                                                                 3301
                                                                                                                                                                                 3361
                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                               qq
            8 8
                                            g
                                                                ŏ
                                                                             g
                                                                                            õ
                                                                                                             g
                                                                                                                                δ
                                                                                                                                              a
                                                                                                                                                               ò
                                                                                                                                                                             g
                                                                                                                                                                                                δ
                                                                                                                                                                                                            g
                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                               οy
                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                ò
Ω
                                                                                                       2172
                                                                                                                        2220
                                                                                                                                                                                                                       2400
                                                         2100
                                                                                        2160
                                                                                                                                                          2280
                                                                                                                                                                         2292
                                                                                                                                                                                        2340
                                                                                                                                                                                                                                                        2460
                                                                                                                                                                                                                                                                                         2520
                                                                                                                                                                                                                                                                                                                         2580
                                                                                                                                                                                                                                                                                                                                        2592
                                                                                                                                                                                                                                                                                                                                                        2640
                                                                                                                                                                                                                                                                                                                                                                                         2700
                                                                                                                                                                                                                                                                                                                                                                                                        2712
                                                                                                                                                                                                                                                                                                                                                                                                                        2760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCACAGCCTGTTTCTGGATTTGCAGGTGAACAGCCTCCAGACGGTGTGCACCAACATCTA 3060
                       CAGCGTGCTCAACTACGAGCGGGCGCGCCCCCGGCCTCCTGGGCGCCTCTGTGCTGCGG
                                                                                               GCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGACCATCCCCCA
                                                                                                                                                                 CAAGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCTCCACGCTGCTCTG
                                                                                                                                                                                                                                                                                                                                                                CTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGTGAACTTGCGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                        GACAGTGGTGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGCCTTTTGTTCAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGGAGC
                                                                         CAGCGIGCTCAACTACGAGCGGGCGCGCCCCCGGCCTCCTGGGCCCTCTGTGCTGGG
                                                                                                                         GCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGACACCATCCCCCA
                                                                                                                                                         TCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCCTTCAAGAGCCA
                                                                                                                                                                                                                                                        GACCAGCCCGCTGAGGGATGCCGTCGTCATCGAGCAGAGCTCCTCCTCGAATGAGGCCAG
                                                                                                                                                                                                                                                                                                                                                       CAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGGATTCGGCGGGACGGGCT
                                                                                                                                                                                                                                                                                                                                                                                        GCTCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCACCCACGCGAAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGCCCCACGGCCTATTCCCCTGGTGCGGCCTGCTGGATACCCGGACCCTGGAGGT
                                                                                        CCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCGGGGCCCAGGACCC
2281
                                                                                                                                                                                                                                                                       2413
                                                                                                                                                                                                                                                                                                                                       2533
                                                                                                                                                                                                                                                                                                                                                                                       2641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2941
                        1981
                                       1993
                                                        2041
                                                                       2053
                                                                                                       2113
                                                                                                                        2161
                                                                                                                                        2173
                                                                                                                                                        2221
                                                                                                                                                                        2233
                                                                                                                                                                                                       2293
                                                                                                                                                                                                                       2341
                                                                                                                                                                                                                                       2353
                                                                                                                                                                                                                                                        2401
                                                                                                                                                                                                                                                                                        2461
                                                                                                                                                                                                                                                                                                        2473
                                                                                                                                                                                                                                                                                                                                                       2581
                                                                                                                                                                                                                                                                                                                                                                        2593
                                                                                                                                                                                                                                                                                                                                                                                                       2653
                                                                                                                                                                                                                                                                                                                                                                                                                        2701
                                                                                                                                                                                                                                                                                                                                                                                                                                        2713
                                                                                                                                                                                                                                                                                                                                                                                                                                                       2761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3001
                                                                                        2101
                                                                                                                                                                                                                                                                                                                        2521
        1933
                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                    qq
                        윱
                                                       윱
                                                                                       셤
                                                                                                    ò
                                                                                                                      ద
                                                                                                                                   ŏ
                                                                                                                                                    요
                                                                                                                                                                     ò
                                                                                                                                                                                      셤
                                                                                                                                                                                                      ò
                                                                                                                                                                                                                    ద
                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                     qq
                                                                                                                                                                                                                                                                                                      ογ
                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                     ద
                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                        ö
                                                                       à
        ò
```

3660

3540

3480

3600

3552

3720

3732

3672

3780

552 900 99 672

디

Dec

Mon

```
AGCCGGTGTCTGTGCCCCGGGAGAAGCCCCCAGGGCTCTGTGGCGGCCCCCCGAGGAGGAGGA 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        373 GCTGCTGGACGGGCCCCCCGGGGCCCCCCCGAGCTTCACCACCAGCGTGCCGCAGCTA
                                                                                                                                                                                                                                                                                                                                                                        CCGCGTGGGCGACGACGTGCTGGTTCACCTGCTGGCACGCTGCGCGCTCTTTGTGCTGGT
                                                                                                                                                                                                                           TGCCCCTGAGCCGGAGCGGACGCCCGTTGGGCAGGGGTCCTGGGCCCACCGGGCAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         793 TGCCCCTGAGCCGGAGCGGACGCCCGTTGGGCAGGGGTCCTGGGCCCCACCCGGGCAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCCTCCTTCCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTGCCCCTACGGGGTGCTCCTCAAGACGCACTGCCCGCTGCGAGCTGCGGTCACCCCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTGCTGGACGGGGCCCGCGGGGCCCCCCGAGGCCTTCACCACCAGCGTGCGCAGCTA
                                                                                                                                                           GGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCTCGGCGCTGCCAC
                                                                                                                                                                                                                                                                                                                     TCAGGCCCGGCCCCCCCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                             GAGGCGCGCGCGCCAGTCCAGCCGAAGTCTGCCCTTGCCCAAGAGGCCCAGGCGTGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGTGGACCGAGTGACCGTGGTTTCTGTGTGTCACCTGCCAGACCCGGCCGAAGAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CACCICITIGGAGGGIGCGCTCTCTGGCACGCGCCACTCCCACCCATCCGTGGGCCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCACCACGCGGGCCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACCATCTTTCIGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCGCCT
                                                    CCGAGTGCTGCAGAGCTGTGCGAGCGCGCGCGAAGAACGTGCTGGCCTTCGGCTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     313
                                                                                                                                                                                    433
                                                                                                                                                                                                                                                                                           553
                                                                                                                                                                                                                                                                                                                                                                                                                                                     733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1321
                                                                                                                                                                                                                                        493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1213
                                                                                                                                                           421
                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                  541
                                                                                                                                                                                                                                                                                                                                                                         661
                                                                                                                                                                                                                                                                                                                                                                                                   673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1261
                                                                                                        361
                                                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                                                                                                                                                                             721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       901
                                                    301
                        οy
                                             g
                                                                       οχ
                                                                                                    g
                                                                                                                                 ö
                                                                                                                                                     ద
                                                                                                                                                                                  ò
                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13 GCAGCGCTGCGTCCTGCTGCGACGTGGGAAGCCCTGGCCCCGGGCCACCCCCGCGATGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCGCGCTCCCCGCTGCCGAGCCGTGCGCTGCTGCTGCGCCAGCTACCGCGAGGTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCGCTGGCCACGTTCGTGCGGCGCCTGGGGCCCCAGGGCTGGCGGCTGCAGCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGGCCACCCCCGCGATGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note= "human telomerase reverse
transcriptase (hTRT) catalytic protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 4015;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCATION: 56..3454
OTHER INFORMATION: /product= "htrr"
OTHER INFORMATION: /note= "human telomerase revers
OTHER INFORMATION: transcriptuse (htrr) catalytic
OTHER INFORMATION: component"
SEQUENCE 4015 BP; 663 A; 1363 C; 1275 G; 714 T; 0 OTHER.
                                                                                                                   #1.30
                                                                                                                                                                                                                                                                                                                                       PULDAST FLOATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-00T-1996
CLASSIFICATION S36
ATTORNEY/AGENT INFORMATION:
NAME: APPIe, Randolph T.
RECISTATION NUMBER: 36,429
REFERENCE/DOCKET NUMBER: 015389-002930US
TELECOMMUNICATION INFORMATION:
TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 224:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 3784; DB 21;
Pred. No. 0.00e+00;
0; Mismatches 1;
                                                                           MEDIUM TYPE: Floppy disk
COMPUTER: TBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/854,050
FILING DATE: 09-MAY-1997
8th
                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION: 536
                                                                                                                                                                                             APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
CLASSIFICATION: 536
                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
CLASSIFICATION: 536
                                       America
 Center,
                                       ō
 Two Embarcadero
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
LENGTH: 4015 base pairs
                        California
: United States
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 99.6%;
Best Local Similarity 100.0%;
Matches 3785; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRANDEDNESS: single
                                                                                                                                                                                 PRIOR APPLICATION DATA:
                                                           COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
             San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                         FILING DATE: 09 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: CDS
LOCATION: 56.
                                                94111
                                      COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  193
```

840

900 912 1032 1080 1092 1140 1152

엄

à

g

ò

a

ö

y 2413 GACCAGCCGCTGAGG b 2461 CAGTGGCCTCTTCGAC	2473	2533	b 2581 CAGCCTGTGCTACGGC 	2641	b 2701 CTTCCTCAGGACCCTG	2761	2821	2881		3001	b 3061 CAAGATCCTCCTGCTG 	b 3121 TCAGCAAGTTTGGAAG 	3181	b 3241 CGGCCCTCTGCCCTCC	3301	3361	3421	b 3481 GAGCAGACACCAGCAG
AQQ —	0y	8 & 	중 중	dg Qy	원 장	원 상 -	8 & 	g &	전 장	да _О	да _б	<u>ପ</u> ୪	යි ර් ව	δ. δ.	ପ ୪	da Qy	da Vy	요 ~~
		1441 CGGCTTCGTGCGGCCTGCCTGCGCGCTGGTGCCCCCAGGCTCTGGGGCTCCAGGC 1500	1501 CAACGAACGCCGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAA 1560 	GCTCTCGCTGCAGGAGCTGACGTGGAAGATGAGCGTGCGGGACTGGGCTTGGCTGGC	7	-	1741 TGTCACGAGACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAGTGTCTGGAG 1800 	1801 CAAGTIGCAAAGCAITGGAAICAGACACIGGAGGGIGCAGCIGCGGGAGCIGI 1860 	1861 GGAAGCAGAGGTCAGGCAGCATCGGGAAGCCAGGCCCGCCTGCTGACGTCCAGACTCCG 1920 	-	2040		2101 CCTGGACGATATCCACAGGCCTGGCGCCCTCGTGCTGCGTGCG		1 GGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACAGGTACGCGTGCG	2281 TCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCCTTCAAGAGCCA 2340 	CCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTGCAGGA 24	
6y Op	δλ	d Q	g o	ga Vo	og o	Oy Oy	g o	d Oy	g o	Oy Op	qa vo	op Ov	do yo	a o	da yo	g o	oy Oy	g ,

GGATGCCGTCGTCATCGAGCAGCTCCTCCTCAATGAGGCCCAG 2472 TGGATGATTTCTTGTTGGTGACACCTCACCTCACCCCGCGAAAAC CCCTGTAGAAGACGAGGCCTGGGTGGCACGGCTTTTGTTCAGAT GCAGGCGTACAGGTTTCACGCATGTGTGCTGCAGCTCCCATTTCA GCAGGCGTACAGGTTTCACGCATGTGTGTTGTTTTTCA AGAACCCCACATITITCCIGCGCGICATCTCIGACACGGCCICCCT CAAGACCATCCTGGACTGATGGCCACCGCCCACAGCCAGGCCGA ACGICITCCIACGCITCATGIGCCACCACGCCGIGCGCAICAGGGG ATGCCAGGGATCCCGCAGGGCTCCATCCTCCACGCTGCTCTG GGACATGGAGAACAAGCTGTTTGCGGGGATTCGGCGGGACGGGCT CAGCTATGCCCGGACCTCCATCAGAGCCAGTCTCACCTTCAACCG SGAGGAACATGCGTCGCAAACTCTTTGGGGTCTTGCGGCTGAAGTG GGATTTGCAGGTGAACAGCCTCCAGACGGTGTGCACCAACATCTA ATTCCCCTGGTGCGGCCTGCTGGTACCCGGACCCTGGAGGT CCCGGGGACGACGCTGACTGCCCTGGAGGCCGCAGCCAACCCGGC

```
SEQUENCE CHARACTERISTICS:
LENGTH: 4023 base pairs
                                           linear
                                                                                                                                                                                                                                                                                                                             303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     903
                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                           음
                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
 8888888
                                                                                                                                     ò
                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ğ
                                                                                                                                                                             ö
                                                                                                                                                                                                                      å
                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                        ò
                   3673 GAGTGTCCACACACACACGCGTCTTCACTTCCCCACAGGCTGGCGTCGGCTCCACCACA
                                                                                           GAGTGTCCAGCACACCTGCCGTCTTCACTTCCCCACAGGCTGGCGCTCGGCTCCACCCCA
                                                                                                                                                                                                                                                                                                                                       and
                                                                                                                                                                                                                                                                                                                                       Gene
                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/026,981
FILING DATE: 20-FEB-1998
CLASSIFICATION NUMBER: US 60/064,322
FILING DATE: 30-OCT-1997
PROR APPLICATION NUMBER: US 60/055,762
FILING DATE: 14-AUG-1997
PROR APPLICATION NUMBER: US 60/054,549
FILING DATE: 01-AUG-1997
PROR APPLICATION NUMBER: US 60/047,151
FILING DATE: 20-MAY-1997
PROR APPLICATION NUMBER: US 60/047,151
FILING DATE: 20-MAY-1997
PROR APPLICATION NUMBER: US 60/038,750
FILING DATE: 20-MAY-1997
PROR APPLICATION NUMBER: US 60/038,750
FILING DATE: 20-FEB-1997
ATPONEY/AGENT INPORMATION:
NAME: ABABICATION PATE: 20-FEB-1997
NAME: CABABAR
                                                                                                                                                                                                                                                                   Sequence 35, Application US/09026981
Sequence 35, Application US/09026981
GENERAL INFORMATION:
APPLICANT: Counter, Christopher M.
APPLICANT: Meyerson, Matthew
APPLICANT: Welberg, Robert A.
TITLE OF INVENTION: Telomerase Catalytic Subunit (NUMBER OF SEQUENCES: 52
                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE: Hamilton, Brook, Smith & Reynolds, STREET: Two Militia Drive CITY: Lexington
                                                                                                                                                                                                                                         ВР
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME: Granahan, Patricia
REGISTRATION NUNBER: 32,227
REFERENCE/DOCKET NUNBER: WHI97-11p4AM
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                              7T 6
US-09-026-981-35 STANDARD; DNA; UNC; 4023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEPHONE: 781-861-6240
TELEFAX: 781-861-9540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                            USA
                                                                                                                                                                           CCAGAT 3786
                                                                                                                                                                                               3793 CCTGAT 3798
                                                                                                                                                                                                                                                                                                                                                                                                                      ZIP: 02173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY:
                                                                                                                                                                                                                                                    XXXXXX
          3541
                                                                                                                                                                           3781
                                                                                           3661
                                                 g
                                                                                                              ò
                                                                                                                                  g
                                                                                                                                                        ò
                                                                                                                                                                           g
                                                                                                                                                                                               ò
                                                                                                                                                                                                                                         à
```

```
ö
                                                                                                                                                                                                                                                                                242
                                                                                                                                                                                                                                                                                                                                   302
                                                                                                                                                                                                                                                                                                                                                             311
                                                                                                                                                                                                                                                                                                                                                                                         362
                                                                                                                                                                                                                                                                                                                                                                                                                                          422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     842
                                                                                                                                                                         122
                                                                                                                                                                                     132 TGCCGCTGGCCACGTTCGTGCGGCGCCTGGGGCCCCAGGGCTGGCGGCTGCAGCGC 191
                                                                                                                                                                                                                                                                                                         251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              962
                                                                                                                      62
                                                                                                                                           12 GGCAGCGCTGCTGCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCCGGGATGC 71
                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3 GGCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCTGGCCCCGGCCACGCCCCGCGATGC
                                                                                                                                                                      63 CGCGCGCTCCCCGCTGCCGAGCCGTGCTCCTGCTGCGCGAGCTACCGCGAGGTGC
                                                                                                                                                                                                                                                                               363 CGCTGCTGGACGGGGCCCGCGGGGGCCCCCCCGAGGCCTTCACCACCAGCGTGCGCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                        612 CTCAGGCCCGGCCCCCGCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       843 CGCGTGGACCGAGTGACCGTGGTTTCTGTGTGGTGTCACCTGCCAGACCCGCCGAAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     123 TGCCGCTGGCCACGTTCGTGCGGCGCCTGGGGGCCTGGCGGCGTGGTGCAGCGCG
                                                                                                                                                                                                                                                                                                                                   CCCGAGTGCTGCAGAGGCTGTGCGAGCGCGCGCGAAGAACGTGCTGGCCTTCGGCTTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    543 TGGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCTCGGCGCTGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         603 CTCAGGCCCGGCCCCCCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            663 CCTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCCCCGGGTGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGAGGCGCGGGGCAGTGCCAGCCGAAGTCTGCCGTTGCCCAAGAGGCCCAGGCGTGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    783 CTGCCCCTGAGCCGGAGCGCCCGTTGGGCAGGGGTCCTGGGCCCACCCGGGCAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                  Length 4023
                                                                                          Indels
                                      C; 1277 G; 715 T; 0 OTHER
                                                               Score 3781; DB 23;
Pred. No. 0.00e+00;
                                                                                          0; Mismatches
                                       SEQUENCE 4023 BP; 668 A; 1363
                                                               Query Match
Best Local Similarity 99.9%;
Matches 3784; Conservative
TYPE: nucleic acid
STRANDEDNESS: single
```

ರ ಕ	TCCGTGGGCCGC	QQ	2043 TCAGO
AGCACCACGO AGCACCACGO		δ	-E
CCCCGGTGTP CCCCGGTGTP	CCCGGTGTACGCCGAGACCATCCTTCTACTCCTCAGGCGACAAGAGCAGCTGC 1082 	OY OY	0 – 0 n n
GGCCCTCCT	GGCCCTCCTTCCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGG 1142 	Oy Oy	0 – O
AGACCATCTT	TTCTGGGTTCCAGGCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCGCC 1202 	Q Q	3 AG
TGCCCCAG TGCCCCAG	TGCCCAGCGCTACTGGCAAATGCGGCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGC 1262 	Db Qy	m 0
AGTGCCCC AGTGCCCC	132	d Q	m 03
CAGCCGGTC	GTCTGTGCCCGGGAGAGCCCCAGGGCTCTGTGGCGGCCCCCGAGGAGGAGG 1382	OY QY	m 0
ACACAGA(ACACAGACCCCCGTCGCTGCTGCAGCTGCTCCGCCAGCAGCAGCCCCTGGCAGGTGT 1442 	& &	m 01
ACGGCTT ACGGCTT	ACGGCTTCGTGCGGGCCTGCCCGGGCTGGTGCCCCCAGGCCTCTGGGGCTCCAGGC 1502	g &	т с
ACAACGA ACAACGA	20005 1 1 1 1 1	oy Oy	583 GCAG 1 1 592 GCAG
AGCTCTC AGCTCTC	CGCTGCAGGAGCTGGAAGATGAGCGTGCGGGCTGCGCTTGGCTGCGCA 1622 	Q V	m N
GGAGCCC GGAGCCC	GGAGCCCAGGGGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGG 1682 	do Qy	m 0
CCAAGTT CCAAGTT	CCAAGTICCTGCACTGGTGATGAGTGTACGTCGTCGAGCTGCTGCTGGGTCTTTCTT	da ç	m 0
ATGTCACGGAG	GGAGACCACGTTTCAAAAGAACAGGCTCTTTTCTACCGGAAGAGTGTCTGGA 1802 	d d	823
GCAAGT GCAAGT	GCAAGTIGCAAAGCAITGGAATCAGACAGCACTTGAAGAGGGTGCGGGGGGGGGTGT 1862 	Oy Oy	2883 TGCAG 2892 TGCAG
CGGAAGO CGGAAGO	-AGAGGTCAGGCAGCATCGGGAAGCCAGGCCCGCCTGCTGACGTCCAGACTCC 192	d d	943 GC 952 GC
GCTTCAT GCTTCAT	GCTICATCCCCAAGCCTGACGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGGAG 1982 	Oy Oy	003
CCAGAACI CCAGAACI	CCAGAACGTICCGCAGAGAAAAGAGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGT 2042 	oy Oy	3063 ACAAG 3072 ACAAG

CTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTGCAGG CAGCCCGCTGAGGGATGCCGTCGTCATCGAGCAGAGCTCCTCCCTGAATGAGGCCA GAGCGACTACTCCAGCTATGCCCGGACCTCCATCAGAGCCAGTCTCACCTTCAACC CAGCCTGTTTCTGGATTTGCAGGTGAACAGCCTCCAGACGGTGTGCACCAACATCT CCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCACCCCACGCGAAAA AGTGGTGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGGCTTTTGTTCAGA CAGGCTCACGGAGGTCATCGCCAGCATCAAACCCCCAGAACACGTACTGCGTGC CCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCACCCACGCGAAAA

```
240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13 GCAGCGCTGCGTGCTGCTGCGCACGTGGAAGCCCTGGCCCCGGCCACCCCGGGATGCC 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 GCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACCCCCGGGATGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          133 GCCGCTGGCCACGTTCGTGCGGCCCTGGGGCCCCAGGGCTGGCGGCTGGTGCAGCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 193 GGACCCGGCGGCTTTCCGCGCGCTGGTGGCCCTGGTGTGCGTGTGCCTGGGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121 GCCGCTGGCCACGTTCGTGCGGCGCTTGGGGCCCCCAGGGCTTGGTGCTGCTGCTGCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241 ANGGCNGCCCCCGCCCCCCTCCTTCCGCCAGGTGTCCTGCCTGAANGANCTGGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCGAGTGCTGCANANGCTGTGCGANCGCGGCGCGAANAACGTGCTGGCCTTCGGCTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ,,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 4029;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 3468; DB 21; Length 40:
Pred. No. 0.00e+00;
0; Mismatches 78; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note= "preliminary sequence for human TRY CDNA insert of plasmid pGRN121"
1342 C; 1255 G; 720 T; 25 OTHER.
MEDIUM TYPE: Floppy disk COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                     015389-002930US
                                                                   APPLICATION NUMBER: US/08/854,050
CLASSIPICATION: 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
CLASSIPICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
CLASSIPICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
CLASSIFICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION NUMBER: US 08/844,419
FILING DATE: 10-APR-1997
CLASSIFICATION NUMBER: US 08/724,643
FILING DATE: 01-OCT-1996
CLASSIFICATION NUMBER: US 08/724,643
FILING DATE: 01-OCT-1996
CLASSIFICATION NUMBER: US 08/724,643
FILING DATE: 01-OCT-1996
                                                                                                                                                                                                                                                                                                                                    ATTORNEY AGENT INFORMATION:
NAME: Apple, Randolph T.
REGIESTRATTON UNDBER: 36,429
REFERENCE/DOCKET NUMBER: 0153
TELEPONMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
INFORMATION FOR SEQ ID NO: 173:
SEQUENCE CHARACTERISTICS:
LENGTH: 4029 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 91.3%;
Best Local Similarity 97.8%;
Matches 3702; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OTHER INFORMATION:
OTHER INFORMATION:
OTHER INFORMATION:
SEQUENCE 4029 BP; 687 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY:
LOCATION: 1..4029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                            3422
                                                                                                                                                                                                                                                                                   3482
                                                                                                                                                                                                                                                                                                                                          3542
 3431
                                                                                                                                                                                                                                                                                                             3491
                                                                                                                                                                                                                                                                                                                                                                     3551
                                                                                                                                                                                                                                                                                                                                                                                                                                                      3662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGGGCCAGCTTTTCCTCACCAGGAGCCCGGCTTCCACTCCCCACATAGGAATAGTCCATC 3782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGACTCGACACCGTGTCACCTACGTGCCACTCCTGGGGTCACTCAGGACAGCCCAGACGC 3362
                                                                                                                                                                                                                                                                                                                                                                                                            CACTGCCCTCAGACTTCAAGACCATCCTGGACTGATGGCCACCGGCCCACAGCCAGGCCG
                                                                                                                                                                                                                                                                                                                                                      CACTGCCCTCAGACTTCAAGACCATCCTGGACTGATGGCCACCGCCCACAGCCCG
                                                                                                                                                                                                                                                                                                                                      TCTGCTACTCCATCCTGAAAGCCAAGAACGCAGGGATGTCGCTGGGGGGCCAAGGGCGCCG
                                                                                                              CCGGCCCTCTGCCCTCCGAGGCCGTGCAGTGGCTGTGCCACCAAGCATTCCTGCTCAAGC
                                                                                                                                                                                                                            AGCTGAGTCGGAAGCTCCCGGGGACGACGTGACTGCCCTGGAGGCCGCAGCCAACCCGG
                                                                                                                                                                                                                                                                                                                                                                                               GCATGTCCGGCTGAAGGCTGAGTGTCCGGCTGAGGCCTGAGCGAGTGTCCAGCCAAGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGAGTGTCCAGCACACCTGCCGTCTTCACTTCCCCACAGGCTGGCGCTCGGCTCCACCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE: Townsend and Townsend and Crew LLP STREET: Two Embarcadero Center, 8th Floor CITY: San Francisco STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ΒP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Nakamira, Toru
APPLICANT: Rakamira, Toru
APPLICANT: Morin, Gregg B.
APPLICANT: Andrews, William H.
TITLE OF INVENTION: Novel Telomerase
NUMBER OF SEQUENCES: 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-854-050-173 STANDARD; DNA; UNC; 4029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY: United States of America 2IP: 94111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 173, Application US/08854050 Sequence 173, Application US/08854050 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCCAGAT 3789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3792 CCCTGAT 3798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         XXXXXX
 3123
                             3132
                                                       3183
                                                                                   3192
                                                                                                              3243
                                                                                                                                       3252
                                                                                                                                                                    3303
                                                                                                                                                                                              3312
                                                                                                                                                                                                                                                    3372
                                                                                                                                                                                                                                                                                                          3432
                                                                                                                                                                                                                                                                                                                                      3483
                                                                                                                                                                                                                                                                                                                                                                                               3543
                                                                                                                                                                                                                                                                                                                                                                                                                         3552
                                                                                                                                                                                                                                                                                                                                                                                                                                                     3603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3783
                                                                                                                                                                                                                          3363
                                                                                                                                                                                                                                                                                3423
```

g

8 B 8

ŏ

용

9 9 9 9

8 6 6

å

5 6

요

용

5 6

ò

ò

Db 1435 ACGGCTTCGTGCGGG Qy 1452 ACGGCTTCGTGCGGG Db 1495 ACAACGAACGCCGCT Qy 1512 ACAACGAACGCCGCT Db 1555 AGCTTCGCTGCAGG Db 1554 AGCTTCGCTGCAGG Db 1555 AGCTTCGCTGCAGG Db 1555 AGCTTCGCTGCAGG Db 1556 AGCTCTCGCTGCAGG	GGAGCCCAGGGG CCAAGTTCTGC CCAAGTTCTGC CCAAGTTCTGC ATGTCAGGGAGA ATGTCAGGGAGA ATGTCAGGGAGA ATGTCAGGGAGA ATGTCAGGGAGA ATGTCAGGGAGA	1735 GCARALIGORAN 1812 GCAAGTTGCAAA 1855 CGGAAGCAGAGG 1872 CGGAAGCAGAGG 1915 GCTTCATCCCCA 1932 GCTTCATCCCCCA	1975 CCAGAACGITCCC 	CTGGACGATATC	12 QY 2232 AGGACAGGCTC 12 Db 2275 GTGGGTATGCO 54 QY 2292 GTGGGTATGCO 72 Db 2335 ACGTCTTACC 14 QY 2355 ACGTCTTACC	2395 ANAACAGCCGCTGA 2412 AGACCAGCCGCTGA 2455 GCAGTGGCCTTCG 2455 GCAGTGGCCTTTCG 2472 GCAGTGGCCTTTCG
TTGGACGGGGGCCCCCCGAGGCCTTCACCACCAGCGTGCCCAGCTA TITITITITITITITITITITITITITITITITITI	GGTCCCAGCTGCCCTACCANGTGTGCGGCCCCCTGTACCAGCTGGCGCTGTGCAGCTGCTGCAGCTGCTGCAGCTGCTGCAGCTGCTGCAGCTGCCGCTGTACCAGCTTGCGCGCTGTGCGGCGCTGTACCAGCTTGGCGCGCTGTACCAGCTTGGCGCGCTGCCAGCTGTACCAGCTTGGCGCCCGCC	11	100 100	CGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGNA-CACTGCGN	GCCCCAGCGNTACTGGCAAATGCGGCCCTGTTTCTGGAGCTCCCCGCAGGTTGCCCCGCCTGGCAGCTTCTCTGGGAACCAGGCTCCCCGCCGCCTTTTCTTGGAACCAGGTTGCCCGCCTTTTCTTGGAACCAGGCCCTTTTCTTGGAACCAGGCCCTTTTTTTT	CCTACGGGGTGCTCCTCAAGACGCACTGCCGGTGCAGTGCGTCACCCGGGGGGGG
9 0 0 0 0		4. K 4 K 4 K	oy oy	90	2 2 2 2 2	6 6 6 6

qa	1435	GCGCCGGCTGGTGCCCCCAGGCCTCTGGGGCTCCAGGC 14
ΟŊ	S	CGGCTTCGTGCGGGCCTGCCTGGCCGGCTGGTGCCCCCAGGCCTCTGGGGCTCCAGGC
QQ	1495	CATCTCCCTGGGGAAGCATGCCA 15
Qy	1512	CAACGAACGCCGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCA 15
qa	ľ	61
ΟY	1572	TTTTCGCTGCAGGAGCTGAAGATGAGCGTGCGGGACTGCGCTTGGCTGCGCA 16
qq	1615	GGAGCCCAGGGGTTGGCTGTTCCGGCCGCAGACACCGTCTGCGTGAGGAGATCCTGG 1674
Qy	1632	GAGCCCAGGGGTTGGCTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGG 169
QQ	1675	CTGGCTGATGAGTGTACGTCGTCGAGCTGCTCAGGTCTTTCTT
QY	1692	CAAGITCCTGCACTGGCTGATGAGTGTGTACGTCGTCGAGCTGCTCAGGTCTTTTTTT 175
QQ	1735	TCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAGTGTCTGGA 17
QY	1752	TGTCACGGAGACCACGTTTCAAAAGAACAGCTCTTTTTTTT
QQ	1795	GCAAGTIGCAAAGCATIGGAATCAGACAGCACTIGAAGAGGGGTGCAGCTGCGGGGGCTGT 1854
ΟY	1812	CAAGTIGCAAAGCATIGGAATCAGACAGCACTIGAAGAGGGTGCAGCIGCGGGAGCTGT 187
qq	1855	CGGAAGCAGAGGTCAGGCATCGGGAAGCCAGGCCCGCCTGCTGACGTCCAGACTCC 1914
Qy	1872	GGAAGCAGAGGTCAGGCAGCATCGGGAAGCCAGGCCCGCCC
qq	1915	1 CCCCAAGCCTGACGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGGAG 1
QY	1932	CITCATCCCCAAGCCTGAGCTGCGGCCGAITGTGAAACATGGACTACGTCGTGGGAG 1
qq	1975	CCAGAACGTICCGCAGAGAAAAGAGGGCCGAAGCGTCTCACCTCGAGGGTGAAGGCACTGT 2034
Qy	1992	CAGAACGTICCGCAGAGAAAAGAGGGCCGAGCGTCTCTCACCTCGAGGGTGAAGGCACTGT 2
qq	2035	AGCGTGCTCAACTACGAGCGGCGCGCCCCCGGCCTCCTGGGCGCCTCTGTGCTGG 2
Qy	202	CAGCGTGCTCAACTACGAGCGGGGGGCGCCCCCGGCCTCCTGGGCGCCCTCTGTGCTGG
q	2095	CJGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCGGCCCAGGACC
οy	2112	CCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGGTGCGGGCCCAGGACC 2
qq	2155	CCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGGCGCGTACGACACCATCCCCC 2
δy	2172	GCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGCGCGCGTACGACACCATCCCCC 2
qq	2215	GGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACACGTACTGCGTGC 2
QY	2232	JAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACACGTACTGGGGTC 2
qq	2275	CGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCCTTCAAGAGCC 2
Οy		TCGGTATGCCGTGGTCCAGAAGCCGCCCATGGGCACGTCCGCAAGGCCTTCAAGAGCC
qq	2335	GTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTGCAGG 2
Qy	2352	CGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTGCAGG 2
qq	2395	CAGCCCGCTGAGGGATGCCGTCGTCATCGAGCAGAGCTCCTCCTGAATGAGGCCA 2
Qy	2412	AGCCCGCTGAGGGATGCCGTCGTCATCGAGCAGAGCTCCTCCCTGAATGAGGCCA 2
qq	2455	CGACGICITCCIACGCITCATGIGCCACCACGCCGIGCGCATCAGGG 2
Qy	2472	CAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGTGCGCATCAGGG 2
qq	2515	GCAAGICCTACGICCAGIGCCAGGGGAICCCGCAGGGCICCATCCICTCCACGCIGCICI 2574

```
3612 GCATGTCCGGCTGAAGGCTGAGTGTCCGGCTGAGGCCTGAGCGAGTGTCCCAGCCAAGGGC 3671
                                                                            3655 TGAGTGTCCAGCACACCTGCCGTCTTCACTTCCCCACAGGCTGGCGCTCGGCTCCACCCC
                                                                  AGGGCCAGCTTTTCCTCACCAGGAGCCCGGCTTCCACTCCCCACATAGGAATAGTCCATC
                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER REALABLE FORM:

COMPUTER: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.30
CURRENT APPLICATION NATA:
APPLICATION NUMBER: US/08/851,843
FILING DATE: 06-MAY-1997
                                                                                                                                                                                                                                                                                                                                                  STREET: Two Embarcadero Center, 8th Floor CITY: San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REGISTRATION NUMBER: 36,429
REFERENCE/DOCKET NUMBER: 015389-002930US
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
INFORMATION FOR SEQ ID NO: 173:
SEQUENCE CHARATERISTICS:
                                                                                                                                                                                                         APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Lingner, Joachim
APPLICANT: Nakamura, Toru
CC APPLICANT: Maramura, Toru
CC APPLICANT: Marin, Gregg B.
CC APPLICANT: Marin, Gregg B.
TITLE OF INVENTION: Novel Telomerase
NUMBER OF SEQUENCES: 223
CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and START: Sand START: Sand START:
                                                                                                                                                                           US-08-851-843-173 STANDARD; DNA; UNC; 4029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRICE APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION: 536
PRICE APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-OCT-1996
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY: United States of America 21P: 94111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
CLASSIFICATION: 536
                                                                                                                                                                                              Sequence 173, Application US/08851843 GENERAL INFORMATION:
APPLICANT: Cech. mac.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTORNEY/AGENT INFORMATION:
NAME: Apple, Randolph T
REGISTRATION NUMBER: 36,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 4029 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION: 536
                                                                                                                         111 111
3792 CCCTGAT 3798
                                                                                                            CCCAGAT 3781
                                                                                                                                                                                          XXXXXX
                                                                3715
                                                                                                            3775
                                                                                                                                                                  g
                                    δ
                                                           셤
                                                                                      ò
                                                                                                          g
                                                                                                                                 ò
                                                                                                                                                                                                             2874
                                                                                                                                                                                                                                                                                                                                                                                             3114
                                                                                                                                                                                                                                                                                                                                                                                                                   3131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3654
                                                                                                                                                                                                                                   2891
                                                                                                                                                                                                                                                                                                     2994
                                                                                                                                                                                                                                                                                                                                                                       3071
                                                                                                                                                                                                                                                                                                                                                                                                                                                             3191
                                                                                                                                                                                                                                                                                                                                                                                            GCAAGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGCTCCATCCTCTCCACGCTGCTCT
                                         TGCTCCTGCGTTTGGTGGATGATTCTTGTTGGTGGTGACACCTCACCTCACGCGAAAA
                                                                                               2652 TGCTCCTGCGTTTGGTGGTGATTTCTTGTTGGTGACACCTCACCTCACCCACGCGAAAA
                                                                                                                                  TGCCGGCCCACGGCCTATTCCCCTGGTGCGGCCTGCTGCTGGATACCCGGACCCTGGAGG
                                                                                                                                                                                                                       TGCAGAGCGACTACTCCAGCTATGCCCGGACCTCCATCAGAGCCAGTCTCACCTTCAACC
                                                                                                                                                                                                                                                                      GCGGCTTCAAGGCTGGGAAGAACATGCGTCGCAAACTCTTTGGGGGTCTTGCGGCTGAAGT
                                                                                                                                                                                                                                                                                                                  GCGCCTTCAAGGCTGGGAGGAACATGCGTCGCAAACTCTTTGGGGTCTTGCGGCTGAAGT
                                                                                                                                                                                                                                                                                                                                                            TCTGCTACTCCATCCTGAAAGCCAAGAACGCAGGGATGTCGCTGGGGGCCAAGGGCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCTGCTACTCCATCCTGAAAGCCAAGAACGCAGGGATGTCGCTGGGGGCCAAGGGCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3252 CGGCCCTCTGCCCTCCGAGGCCGTGCAGTGGCTGTGCCACCAGGCATTCCTGCTCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3372 AGCTGAGTCGGAAGCTCCCGGGGACGACGCTGACTGCCCTGGAGGCCGCAGCCAACCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCATGTCCGGCTGAAGGCTGAGTGTCCGGCTGAGGCCTGAGCGAGTGTCCAGCCAAGGGC
                               GCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGGATTCGGCGGGACGGGC
                                                                                                                      CCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGTGAACTTGCGGA
                                                                                                                                                                  AGACAGTGGTGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGGCTTTTGTTCAGA
                                                                                                                                                                                                                                                                                                                                                  GTCACAGCCTGTTTCTGGATTTTGCAGGTGAACAGCCTCCAGACGGTGTGCACCAACATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCGCCCCTCTCCCCTCCGAGGCCGTGCAGTGGCTGTGCCACCAAGCATTCCTGCTCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGACTCGACACCGTGTCACCTACGTGCCACTCCTGGGGGTCACTCAGGACAGCCCAGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGCTGAGTCGGAAGCTCCCGGGGACGACGTGACTGCCCTGGAGGCCGCAGCCAACCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CACTGCCCTCAGACTTCAAGACCATCCTGGACTGATGGCCACCCCCCCACAGCCAGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2592
                                                                                                                                                                                                                                                                                                                                                                                                                                                            3132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3535
         2532
                              2575
                                                                         2635
                                                                                                                     2692
                                                                                                                                          2712
                                                                                                                                                                  2755
                                                                                                                                                                                       2772
                                                                                                                                                                                                             2815
                                                                                                                                                                                                                                 2832
                                                                                                                                                                                                                                                         2875
                                                                                                                                                                                                                                                                              2892
                                                                                                                                                                                                                                                                                                    2935
                                                                                                                                                                                                                                                                                                                         2952
                                                                                                                                                                                                                                                                                                                                                 2995
                                                                                                                                                                                                                                                                                                                                                                      3012
                                                                                                                                                                                                                                                                                                                                                                                             3055
                                                                                                                                                                                                                                                                                                                                                                                                                  3072
                                                                                                                                                                                                                                                                                                                                                                                                                                        3115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3595
                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                              g
                                                                                                                                                                음
                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                   ò
                                                                       ద
                                                                                               ò
                                                                                                                   셤
                                                                                                                                          ò
                                                                                                                                                                                       ò
                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                               å
```

```
g
                                                                                            윰
                                                                                                                    q
                                                                                                                                              셤
                                                                                                                                                                      g
                                                                                                                                                                                                g
                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                           엄
                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                g
      ò
                셤
                               ò
                                          g
                                                        ò
                                                                   g
                                                                               οy
                                                                                                          Q
                                                                                                                                οy
                                                                                                                                                            ò
                                                                                                                                                                                     ŏ
                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                          Qγ
                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                              Ġ
                                                                                                                                                                                                                  372
                                                                                                                                                                                                                                                                                  540
                                                                                                                132
                                                                                                                            180
                                                                                                                                        192
                                                                                                                                                     240
                                                                                                                                                                  252
                                                                                                                                                                              300
                                                                                                                                                                                           312
                                                                                                                                                                                                        360
                                                                                                                                                                                                                                420
                                                                                                                                                                                                                                            432
                                                                                                                                                                                                                                                         480
                                                                                                                                                                                                                                                                     492
                                                                                                                                                                                                                                                                                              552
                                                                                                                                                                                                                                                                                                          600
                                                                                                                                                                                                                                                                                                                       612
                                                                                                                                                                                                                                                                                                                                    658
                                                                                                                                                                                                                                                                                                                                                672
                                                                                                                                                                                                                                                                                                                                                             717
                                                                                                                                                                                                                                                                                                                                                                         732
                                                                                                                                                                                                                                                                                                                                                                                      777
                                                                                                                                                                                                                                                                                                                                                                                                 792
                                                                                                                                                                                                                                                                                                                                                                                                              837
                                                                                                                                                                                                                                                                                                                                                                                                                          852
                                                                                                                                                                                                                                                                                                                                                                                                                                                    912
                                                                                                   GCGCGCTCCCCGCTGCCGAGCCGTGCGCTCCTGCTGCGCAGCCACTACCGCGAGGTGCT 120
                                                                                                                                                                                                                                                                                                                                                                                                                                        897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                957
                                                                          9
                                                                                      72
                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                    GCAGCGCTGCGTGCTGCTGCGACGTGGGAAGCCCTGGCCCCGGCCACCCCCGGCGATGCC
                                                                                                          GCCGCTGGCCACGTTCGTGCGGCCCTGGGGCCCCAGGGCTGGCGGCTGGTGCAGCGCGG
                                                                                                                                   GGACCCGGCGCTTTCCGCGCGNTGGTGGCCCANTGCNTGGTGTGCGTGCCTGGGANGN
                                                                                                                                                            GCTGCTGGACGGGCCCGGGGGCCCCCCCGAGGCCTTCACCACCAGCGTGCGCAGCTA
                                                                                                                                                                                                                                            GCTGCTGGACGGGGCCCGGGGGGCCCCCCGAGGCCTTCACCACCAGCGTGCGCAGCTA
                                                                                                                                                                                                                                                         CCGCGTGGGCGACGTGCTGGTTCACCTGCTGGCACGCTGCGCGNTNTTTGTGCTGGT
                                                                                                                                                                                                                                                                                        GGNTCCCAGCTGCGCCTACCANGTGTGCGGGCCGCCGCTGTACCAGCTCGGCGCTGCNAC
                                                                                                                                                                                                                                                                                                                  TCAGGCCCGGCCCCGCCACACGCTANTGGACCCGAANGCGTCTGGGGAT - - CCAACGGGC
                                                                                                                                                                                                                                                                                                                                          CTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCTGGGC-TGCCAGCCCCGGGTGCGAG
                                                                                                                                                                                                                                                                                                                                                                   TGCCCCTGAGCCGGAGCGGACGCCCGTTGGGCAGGGGTCCTGGGCCCCACCCGGGCAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCTGGACCGAGTGACCGTGGTTTCTGTGTGTGTCACCTGCCAGACCCGCCGAAGAAGC
                                                                                                                                                                                           7;
                                                 Length 4029
                   for
                                      OTHER
                                                              Indels
                    sequence
                                     25
                                                 Score 3468; DB 21;
Pred. No. 0.00e+00;
0; Mismatches 78;
                                     .;
H
                  /note= "preliminary se human TRT cDNA insert plasmid pGRN121" 1342 C; 1255 G; 720 T;
                                                 Query Match 91.3%;
Best Local Similarity 97.8%;
Matches 3702; Conservative
            LOCATION: 1..4029
OTHER INFORMATION:
OTHER INFORMATION:
OTHER INFORMATION:
                              OTHER INFORMATION:
SEQUENCE 4029 BP; 687 A;
      NAME/KEY:
                                                                                                                                                                                                                   313
                                                                          ч
                                                                                      13
                                                                                                                                        133
                                                                                                                                                                 193
                                                                                                                                                                                          253
                                                                                                                                                                                                                                            373
                                                                                                                                                                                                                                                                     433
                                                                                                                                                                                                                                                                                              493
                                                                                                                                                                                                                                                                                                                      553
                                                                                                                                                                                                                                                                                                                                                613
                                                                                                                                                                                                                                                                                                                                                                                                 733
                                                                                                                                                                                                                                                                                                                                                                                                                          793
                                                                                                   61
                                                                                                                            121
                                                                                                                                                     181
                                                                                                                                                                              241
                                                                                                                                                                                                       301
                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                  481
                                                                                                                                                                                                                                                                                                          541
                                                                                                                                                                                                                                                                                                                                   601
                                                                                                                                                                                                                                                                                                                                                            629
                                                                                                                                                                                                                                                                                                                                                                         673
                                                                                                                                                                                                                                                                                                                                                                                      718
                                                                                                                                                                                                                                                                                                                                                                                                              778
                                                                                                                                                                                                                                                                                                                                                                                                                                       838
                                                                                                                                                                                                                                                                                                                                                                                                                                                   853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                868
                                                                          셤
                                                                                      ò
                                                                                                  ద
                                                                                                                ò
                                                                                                                           ద
                                                                                                                                        ò
                                                                                                                                                    셤
                                                                                                                                                                 ò
                                                                                                                                                                            셤
                                                                                                                                                                                          à
                                                                                                                                                                                                      g
                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                        요
                                                                                                                                                                                                                                                                                                                      ő
                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                           g . g
                                                                                                                                                                                                                                                                                                                                                                                                                                    유
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
88888888
```

1135 1016 1032 1075 1092 1152 1212 1272 1332 1392 1494 1571 1631 1871 1914 1931 1974 2034 1194 1254 1314 1374 1434 1451 1511 1554 1614 1674 1691 1734 1751 1794 1811 1854 1991 972 CCAGAACGTTCCGCAGAGAGAAAAGAGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGT AGACANTCTTTCTGGTTCCAGGCCTTGGATGCCAGG-ATTCCCCGCGGGTTGCCCGCCT -CACAGACCCCCGTCGCCTGGTGCTGCTCCCCCCAGCAGCAGCCCCCTGGCAGGTGT GCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGGAG GACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCGCCT GCCCCAGCGNTACTGGCAAATGCGGCCCCTGTTTCTGGAAGCTGCTTGGGAACCACGCGCA GTGCCCCTACGGGGTGTTCCTCAAGACGCACTGCCCGCTGCGAGCTGCGGGTCACCCCAGC AGCCGGTGTCTGTGCCCCGGGAGAAGCCCCCAGGGCTCTGTGCGCGGCCCCCCGAGGAGGA ACACAGACCCCCGTCGCCTGGTGCAGCTGCTCCGCCAGCACAGCAGCACCGCTGGCAGGTGT ACG6CTTCGT6CGG6CCTGCCTGCGCCG6CTGGT6CCCCCAGGCCTCTGGGGGCTCCAGGC GGAGCCCAGGGGTTGGGCTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGG CCAAGITCCTGCACTGGCTGATGAGTGTGTACGTCGTCGAGCTGCTCAGGTCTTTTTTT **ATGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTTTACCGGAAGAGTGTCTGGA** GCAAGTTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGGAGCTGT 1017 1076 1093 1153 1213 1255 1273 1315 1333 1375 1393 1435 1452 1495 1512 1555 1572 1615 1632 1675 1692 1735 1752 1795 1812 1855 1872 1915 1975 1033 1136 1195 1932 913 928 973

```
BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  d and
8th F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Townsend
Center, 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 United States of America
                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 4, Application US/08912951
Sequence 4, Application US/08912951
GENERAL INFORMATION:
APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Integrer, Joachim
APPLICANT: Chapman, Karen B.
APPLICANT: Maxamura, Toru
APPLICANT: Morin, Gregg B.
APPLICANT: Harley, Calvin
APPLICANT: Harley, Calvin
TITLE OF INVENTION: HUMAN TELOMERY
TITLE OF INVENTION: THERAPEUTIC MI
NUMBER OF SEQUENCES: 335
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                     STANDARD; DNA; UNC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE: Townsend and TC
STREET: Two Embarcadero Cc
CITY: San Francisco
STATE: Callifornia
COUNTRY: United States of
                                                                                                                                                                                                                                                                                                                                         CCCAGAT 3781
                                                                                                                                                                                                                                                                                                                                                        CCCTGAT 3798
                                                                                                                                                                                                                                                                                                                                                                             LT 9
US-08-912-951-4 S
XXXXXX
                                                                                                                                                                                      3475
                                                                                                                                                                                                                                                               3612
                                                                                                                                                                                                                                                                                             3672
                                                                                                                                                                                                                                                                                                            3715
                                                                                                                                                                                                                                                                                                                                         3775
       3115
                     3132
                                    3175
                                                  3192
                                                                 3235
                                                                                3252
                                                                                               3295
                                                                                                             3312
                                                                                                                            3355
                                                                                                                                          3372
                                                                                                                                                         3415
                                                                                                                                                                        3432
                                                                                                                                                                                                     3492
                                                                                                                                                                                                                   3535
                                                                                                                                                                                                                                  3552
                                                                                                                                                                                                                                                  3595
                                                                                                                                                                                                                                                                               3655
                                                                                                                                                                                                                                                                                                                                                        3792
                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                             g
                                                                                                                           셤
                                                                                                                                                      g
                                                                                                                                                                                      g
                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                        ò
                     QY
                                   g
                                              οχ
                                                                                ò
                                                                                                            ò
                                                                                                                                         ò
                                                                                                                                                                       ò
                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                              Óγ
                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                             2454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2994
                                                                                                                    2291
                                                                                                                                   2334
                                                                                                                                                                 2394
                                                                                                                                                                               2411
                                                                                                                                                                                                           2471
                                                                                                                                                                                                                          2514
                                                                                                                                                                                                                                         2531
                                                                                                                                                                                                                                                        2574
                                                                                                                                                                                                                                                                       2591
                                                                                                                                                                                                                                                                                      2634
                                                                                                                                                                                                                                                                                                                   2694
                                                                                                                                                                                                                                                                                                                                  2711
                                                                                                                                                                                                                                                                                                                                                2754
                                                                                                                                                                                                                                                                                                                                                              2771
                                                                                                                                                                                                                                                                                                                                                                             2814
                                                                                                                                                                                                                                                                                                                                                                                            2831
                                                                                                                                                                                                                                                                                                                                                                                                          2874
                                                                                                                                                                                                                                                                                                                                                                                                                        2891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3114
                                           2154
                                                                                                                                                 2351
                                                                                                                                                                                                                                                                                                   2651
                                                                                                                                                                                                                                                                                                                                                                                                                                                      2951
                                                                                                    GTCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCCTTCAAGAGCCTTAAGAGCCTTCAAGAGCCTTCAAGAGCCGTGTTCAAGAGCCGTGGTAGAGCCGTGGTGCGTGGTGCGTGGTCCAAGAGCCGTGGTGGTGGTGGTGGGCGACGTCGAAGGCCTTCAAGAGCC
                                                                                                                                                                                                                                                                                                                                                                             TGCTCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCACCCCACGCGAAAA
CCAGAACGTTCCGCAGAGAAAGAGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGT
                      GCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCGGGCCCCAGGACC
                                                  CGCCCCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGACACCATCCCCC
                                                                               ACGTCTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTGCAGG
                                                                                                                                                                                              ANAACAGCCCGCTGAGGGATGCCGTCGTCATCGAGCAGAGCTCCTCCCTGAATGAGGCCA
                                                                                                                                                                                                                          GCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCGTGCGCATCAGGG
                                                                                                                                                                                                                                                       GCAAGTCCTACGTCCAGGGGATCCCGCAGGGCTCCATCCTCTCCACGCTGCTCT
                                                                                                                                                                                                                                                                                     GCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCGGCGGGACGGGC
                                                                                                                                                                                                                                                                                             CCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGAACTTGCGGA
                                                                                                                                                                                                                                                                                                                                                       GCGGCTTCAAGGCTGGGAACATGCGTCGCAAACTCTTTGGGGGTCTTGCGGCTGAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTCACAGCCTGTTTCTGGATTTGCAGGTGAACAGCCTCCAGACGGTGTGCACCAACATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCAGCGTGCTCAACTACGAGCGGGGGGGGGCGCCCCGGCCTCCTGGGCGCCTCTGTGCTGG
                                                                                                                                                                                                                                                                                                   2592
                                                                                                                                                                                                                                                                                                                                 2652
                                                                                                                                                                                                                                                                                                                                                                                            2772
                                                                                                                                                                                                                                                                                                                                                                                                                        2832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2952
1992
              2035
                                                                                                     2215
                                                                                                                   2232
                                                                                                                                                2292
                                                                                                                                                                              2352
                                                                                                                                                                                                            2412
                                                                                                                                                                                                                          2455
                                                                                                                                                                                                                                                       2515
                                                                                                                                                                                                                                                                      2532
                                                                                                                                                                                                                                                                                    2575
                                                                                                                                                                                                                                                                                                                  2635
                                                                                                                                                                                                                                                                                                                                                2692
                                                                                                                                                                                                                                                                                                                                                              2712
                                                                                                                                                                                                                                                                                                                                                                             2755
                                                                                                                                                                                                                                                                                                                                                                                                          2815
                                                                                                                                                                                                                                                                                                                                                                                                                                       2875
                                                                                                                                                                                                                                                                                                                                                                                                                                                     2892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3072
                                           2095
                                                         2112
                                                                        2155
                                                                                      2172
                                                                                                                                  2275
                                                                                                                                                                2335
                                                                                                                                                                                             2395
                                                                                                                                                                                                                                         2472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2935
                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                          8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                     g
G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
ö
             셤
                                       셤
                                                       8 G
                                                                                                  පු
                                                                                                                  ò
                                                                                                                               8 8
                                                                                                                                                            g
                                                                                                                                                                             ò
                                                                                                                                                                                         셤
                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                              ç
                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                   οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                            ò
                                                                                  ò
```

AND DIAGNOSTIC 3354 3414 3491 3534 3594 3611 3654 3671 3234 3251 3294 3551 3791 3732 AGGGCCAGCTTTTCCTCACCAGGAGCCCGGCTTCCACTCCCCACATAGGAATAGTCCATC AGGCCCACCTTTCCTCACCAGGAGCCCGGCTTCCACTCCCCCACATAGGAATAGTCCATC CCGGCCCTCTGCCCTCCGAGGCCGTGCAGTGGCTGTGCCACCAAGCATTCCTGCTCAAGC TGACTCGACACCGTGTCACCTACGTGCCACTCCTGGGGTCACTCAGGACAGCCCAGACGC AGCTGAGTCGGAAGCTCCCGGGGACGACGCTGACTGCCCTGGAGGCCGCAGCCAACCCGG SUBUNIT: HUMAN TELOMERASE CATALYTIC THERAPEUTIC METHODS 335

LLP Crew Floor

360

372

432

480

492

540 552 900 612 999 672 720

420

```
GCCCCAGCGCTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCA 1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCCCAGCGCTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCA 1272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTGCCCCTACGGGGTGCTCCTCAAGACGCACTGCCCGCTGCGAGCTGCGGTCACCCCAGC 1320
                                                                               CCGCGTGGGCGACGACGTGCTGGTTCACCTGCTGGCACGCTGCGCGCTCTTTGTGCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCCGGTGTACGCCGAGACCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCCTCCTTCCTACTCAGCTCTCTGAGGCCCAGCCTGACTGGCGCTCGGAGGCTCGTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCGCCT
GGACCCGGCGCCTTTCCGCGCGCTGGTGGCCTGGTGTGCTGCGTGCCTGGGACGC
                                GCTGCTGGACGGGGCCCGGGGGGCCCCCCCGAGGCCTTCACCACCAGCGTGCGCAGCTA
                                                                                                                                                                                                                                                               GGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCTCGGCGCTGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                               TCAGGCCCGGCCCCCCCCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGGCGCGGGGCAGTGCCAGCCGAAGTCTGCCGTTGCCCAAGAGGCCCAGGCGTGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          733 GAGGCGCGGGGGCAGTGCCAGCCGAAGTCTGCCGTTGCCCAAGAGGCCCAGGCGTGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CACCICITIGGAGGGIGCGCICICIGGCACGCGCCACTCCCACCCAICCGIGGGCCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCACCACGCGGGCCCCCCATCCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GACCATCTICIGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCGCT
                                                                CCGAGTGCTGCAGAGGCTGTGCGAGCGCGGGCGCGAAAAAACGTGCTGGCCTTCGGCTTCGC
                                                                                                                                                                CCGAGTGCTGCAGAGGCTGTGCGAGCGCGGCGCGAAGAACGTGCTGGCCTTCGGCTTCGC
                                                                                                                                                                                                                                                                                                                              TGCCCCTGAGCCGGAGCGGACGCCCGTTGGGCAGGGGTCCTGGGCCCACCCGGGCAGGAC
                                                                                                                                               1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1213
                                                                                                                                                               313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1261
181
                                                                 241
                                                                                                                                301
                                                                                                                                                                                               361
                                                                                                                                                                                                                             373
                                                                                                                                                                                                                                                               421
                                                                                                                                                                                                                                                                                               433
                                                                                                                                                                                                                                                                                                                                                              493
                                                                                                                                                                                                                                                                                                                                                                                              541
                                                                                                                                                                                                                                                                                                                                                                                                                              553
                                                                                                                                                                                                                                                                                                                                                                                                                                                            601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       973
                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ద
                                                              g
                                                                                             ò
                                                                                                                              엄
                                                                                                                                                               ò
                                                                                                                                                                                             g
                                                                                                                                                                                                                             ά
                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGCGCTCCCCGCTGCCGAGCCGTGCGCTGCTGCTGCGCAGCCACTACCGCGAGGTGCT 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCGCTGGCCACGTTCGTGCGGCGCCTGGGGCCCCAGGGCTGGTGCTGCTGCAGCGCGG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13 GCAGCGCTGCGTCCTGCTGCGCACGTGGGAAGCCCTGGCCCGGCCACCCCCGGCGATGCC 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1; Indels 182; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCAGCGCTGCGTCCTGCGCACGTGGGAAGCCCTGGCCCCGGGCCACCCCCGCGATGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note= "nucleic acid sequence with an open reading frame encoding a delta-182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 3855;
                                          COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/912,951
FILING DATE: 14-AUG-1997
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OTHER INFORMATION: POLYPEPTIGE"
SEQUENCE 3855 BP; 651 A; 1300 C; 1226 G; 678 T; 0 OTHER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product= "delta-182 variant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 3391; DB 22;
Pred. No. 0.00e+00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: Apple, Randolph T.
REGISTRARION NUMBER: 36,429
REFERENCE/DOCKET NUMBER: 015389-002600US
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     variant polypeptide'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       open reading frame
                                                                                                                                                                                                     CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION UNDAER: US 08/851,843
FILING DATE: 06-MAY-1997
CLASSIFICATION 435
PRIOR APPLICATION HAS:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
CLASSIFICATION: 435
PRIOR APPLICATION ATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION DATA:
APPLICATION DATA:
CLASSIFICATION DATA:
APPLICATION UNDAER: US 08/724,643
FILING DATE: 01-OCT-1996
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEPHONE: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 3855 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTORNEY/AGENT INFORMATION:
                                 Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 89.3%;
Best Local Similarity 95.2%;
Matches 3603; Conservative
             COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: 1.3855
LOCATION: 1.3855
OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCATION: 56..2479
OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY: linear MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: CDS
LOCATION: 56.
                                 MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 133
```

780

792

732

840 852 900 1020

972

960

1080

셤 ò 유 ö 셤 à

2353 2344 2413 2344 2473 2533	Db 2599 CAGCTGTGCTAGGGGGGAATGG Qy 2593 CAGCCTGTGCTAGGGGGACATGG Db 2459 GCTCCTGCGTTTGGTGGATGATT Qy 2653 GCTCCTGCGTTTGGTGGATGATT Qy 2653 GCTCCTGCGTTTGGTGGATGATT Qy 2519 CTTCCTCAGGACCCTGGTCCGAG Qy 2713 CTTCCTCAGGACCCTGGTCCGAG	257 277 263 269 269	Oy 2893 GCAGAGGGACTACTCCAGGTATG Db 2759 CGGCTTCAAGGCTGGGAGGACA Qy 2953 CGCTTCAAGGCTGGGAGGACA Db 2819 TCACAGCCTGTTCTGGATTGC Oy 3013 TCACAGCCTGTTCTGGATTGC Db 2879 CAAGATCCTCCTGCTGCAGGGG Qy 3073 CAAGATCCTCCTGCTGCAGGGGT Qy 3073 CAAGATCCTCCTGCTGCAGGGGT	Db 2939 TCAGCAAGTTTGGAAGAACCCCA Oy 3133 TCAGCAAGTTTGGAAGAACCCCCA Db 2999 CTGCTACTCCATCCTGAAAGCCA Oy 3193 CTGCTACTCCATCCTGAAAGCCA Db 3059 GGCCCTCTGCCTCGAGGCCG Oy 3153 CGCCCTCTGCCCTCCGAGGCCG	Db 3119 GACTCGACACCGTGTCACCTACG 0y 3313 GACTCGACACCGTGTCACCTACG 0b 3179 GCTGAGTCGGAGAGCTCCCGGGGA 0y 3373 GCTGAGTCGGAAGCTCCCGGGGA 0b 3239 ACTGCCCTCAGACTCCAGGGGA 0y 3433 ACTGCCCTCAGACTTCAAGACCA
qy 1273 GTGCCCTACGGGTGCTCCTCAAGACGCACTGCCGCTGCGAGCTGCGGTCACCCCAGC 1332 b 1321 AGCCGTTGTGCCCGGGAGAAGACCCCAGGGCTGCGGGCTGCGGGTCACCCCAGC 1332 dy 1331 AGCCGTTGTGCCCGGGAGAAGACCCCAGGGCTCTGTGGCGCCCCCGAGGAGGA 1380 dy 1333 AGCCGGTGCTTGTGCCCGGAGAGAGCCCCAGGGCTCTGTGGCGCCCCGAGGAGGA 1392 Db 1381 CACAGACCCCGTTGTGCCTGGTGCTCCTGCCCCCAGCACCACCACCACCACGCTGGCAGGTGTA 140 Qy 1393 CACAGACCCCGTGGTGCAGTGCTCCTGCGCCAGCACACACA	1501 CAACGAACGCCGTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAA 1560 11111111111111111111111111111111111	1681 CAAGTTCCTGCACTGGCTGATGAGTGTGTGCTCGTGGGCTGTGGTGTTTTTA 174 [1611]	1813 CANTITION	2041 CAGCGTGCTCAACTACGAGCGGGCGCCCCGGCCTCTGGGGGGCCTCTGTGCTGGGGGG	2221 GGACAGCTCACGGAGTCATCGCCAGCATCATCAAACCCCAGAACACGTACTGCGTGCG
			,-	-	

CAGCCGTACATGCGACAGTTCGTGGCTCACCTGCAGGA 2412 GTCGTCATCGAGCAGAGCTCCTCCCTGAATGAGGCCAG 2472 TTCTTGTTGGTGACACCTCACCTCACCCACGGAAAC CAGGTGAACAGCCTCCAGACGGTGTGCACCAACATCTA AAGAACGCAGGGATGTCGCTGGGGGCCAAGGGCGCCGC GCCCGGACCTCCATCAGAGCCAGTCTCACCTTCAACCG ACATTTTCCTGCGCGTCATCTCTGACACGGCCTCCCT PATCCIGGACTGATGGCCACCGCCCACAGGCCAGGCCGA GGGATCCCGCAGGGCTCCATCCTCCACGCTGCTCTG GCCCGGACCTCCATCAGAGCCAGTCTCACCTTCAACCG GTGCCACTCCTGGGGTCACTCAGGACAGCCCAGACGCA BACGACGCTGACTGCCCTGGAGGCCGCAGCCAACCCGGC GGTGTCCCTGAGTATGGCTGCGTGGTGAACTTGCGGAA GAAGACGAGGCCCTGGGTGGCACGGCTTTTGTTCAGAT "IGGIGCGGCCTGCTGCTGGATACCCGGACCCTGGAGGT CTACGCTTCATGTGCCACGCCGTGCGCATCAGGGG

```
GCCGCTGGCCACGTTCGTGCGGCGCCTGGGGCCCCAGGGCTGGCGGCTGGTGCAGCGCGG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61 GCGCGCTCCCCGCTGCCGTGCGTTCCCTGCTGCGCGCAGCCACTACCGCGAGGTGCT 120
                                                                                                                                                                                                                                                                                                                                                                                                                              13 GCAGCGCTGCGTCCTGCTGCGCACGCGGAAGCCCTGGCCCGGCCACCCCGGCGATGCC 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCAGGCCCGGCCCCGCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    313 CCGAGTGCTGCAGAGGCTGTGCGCGCGCGCGCAAGAACGTGCTGGCCTTCGGCTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 373 GCTGCTGGACGGGCCCCCCGGGGCCCCCCCGAGCCTTCACCACCAGCGTGCGCAGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                1 GCAGCGCTGCGTGCTGCGCACGTGGGAAGCCCTGGCCCCGGGCCACCCCCGCGATGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGAGTGCTGCAGAGGCTGTGCGAGCGCGCGGAGAACGTGCTGGCCTTCGGCTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361 GCTGCTGGACGGGCCCCGCGGGGCCCCCCGGAGGCCTTCACCAGCGTGCGCAGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCTCCCAGCTGCGCCTACCAGGTGTGCGGGCCGCCGCTGTACCAGCTCGGCGCTGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCGCGTGGGCGACGACGTGCTGGTTCACCTGCTGCCACGCTGCGCGCCTTTTGTGCTGGT
                                                                                                                                                                                                                                                                                                                                                                                       1; Indels 182;
                                                                                                                                                                                                                                                                                                                                                             Length 3855;
                                                                                                                                                                                                                                                                              NAME/KEY: CDS
LOCATION: 56..2476
LOCATION: 56..2476
OTHER INFORMATION: /product= "hTRT"
OTHER INFORMATION: /note= "clone #712562"
SEQUENCE 3855 BP; 651 A; 1300 C; 1226 G; 678 T; 0 OTHER.
                                                                                         NAME: Elhhorn, Gregory P.
REGISTRATION NUMBER: 38,440
REFERENCE/DOCKET NUMBER: 015389-002500US
TELEPHONE: (415) 576-0200
TELEPHONE: (415) 576-0200
INFORMATION FOR SEQ ID NO: 18:
SEQUENCE CHARACTERISTICS:
LENGTH: 3855 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                          Score 3391; DB 22;
Pred. No. 0.00e+00;
0; Mismatches 1;
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/912,951
FILING DATE: 14-AUG-1997
RIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/915,503
FILING DATE: 14-AUG-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                          Query Match 89.3%;
Best Local Similarity 95.2%;
Matches 3603; Conservative
                                                                                                                                                                                                                                                      MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                           TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 601
  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                     3478
                           GAGTGTCCAGCACCTGCCGTCTTCACTTCCCCACAGGCTGGCGCTCGGCTCCACCCCA 3538
                                                                                                                                                                                   GGGCCAGCTTTTCCTCACCAGGAGCCCGGCTTCCACTCCCCCACATAGGAATAGTCCATCC 3598
                                                                                                                                                                                                                                       3733 GGGCCAGCTTTTCCTCACCAGGAGCCCGGCTTCCACCACATAGGAATAGTCCATCC 3792
                                                                                                                                   CACACCCAGGCCCGCACCGCTGGGGAGTCTGAGGCCTGAGTGTTTTGGCCGAGGCCTG
                                                                                                                     CATGTCCGGCTGAAGGCTGAGTGTCCGGCTGAGGCCTGAGCGAGTGTCCAGCCAAGGGCT
             APPLICANT: Cech, Thomas R.
APPLICANT: Cech, Joachim
APPLICANT: Lingner, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Chapman, Karen B.
APPLICANT: Morin, Gregg B.
APPLICANT: Harley, Calvin B.
APPLICANT: Andrews, William
TITLE OF INVENTION: Telomerase Reverse Transcriptase
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
AEDIUM TYPE: Floppy disk
COMPUTER: Eloppy disk
COMPUTER: Eloppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/911,312
FILING DATE: 14-AUG-1997
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3: Townsend and Townsend and Crew LLP Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                             .T 10
US-08-911-312-18 STANDARD; DNA; UNC; 3855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
APPLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
PHOR APPLICATION NUMBER: US 08/851,843
FILING DATE: 09-MAY-1997
FILING DATE: 09-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0CT-1996
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                              Sequence 18, Application US/08911312
Sequence 18, Application US/08911312
GENERAL INFORMATION:
APPLICANT: Cech, Thomas R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY: USA
                                                                                                                                                                                                                                                                                                     3793 CCTGAT 3798
                                                                                                                                                                                                                                                                              CCAGAT 3604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STREET:
                                                                                                                                                                                                                                                                                                                                                                        XXXXXX
                                                                3359
                                                                                          3553
                                                                                                                    3419
                                                                                                                                                                                                                         3539
             3299
                                                                                                                                                                       3479
                                                                                                                                                                                                                                                                            3599
                                                                                                                                                                                                                                                                                                                                              RESULT
             ద
                                                             셤
                                                                                          à
                                                                                                                 셤
                                                                                                                                             ò
                                                                                                                                                                    ద
                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                            ö
```

Ĥ

Gaps

9

240

252 300 360

420 432 480

192

9

540

1741	1801	1861 GG 1873 GG	1921	1981	2041	2101 C 2113 C	2161 G 2173 G	2221 GG 2233 GG	2281 T 1 2293 T	234.	234	234	2345	2399 C 2593 C	2459 GC 11 2653 GC	2519	DD 25/9 GAC QY 2773 GAC
613 TCAGGCCCGGCCCCCGCCACACGCTAGTGGACCCCGAAGGCGTCTGGGATGCGAACGGGC 672 661 CTGGAACCATAGCGTCAGGGAGGCCGGGGTCCCCCTGGGCTGCCAGCCCCGGGTGCGAG 720	721 GAGGGGGGGGAGTGCCGGCGGAGTCTGCCGTTGCCCAAGGGCCCAGGCGTGGCGC 780 	781 TGCCCTGAGCGGAGCGGCCCGTTGGGCAGGGGTCCTGGGCCCACCCGGCAGGGC 840	841 GCGIGGACCGAGIGACCGIGGITICIGIGIGGIGGICACCTGCCAGACCCGCCGAAGAAGC 900 	901 CACCICITIGGAGGIGCGCICICICGGCACGCCCACICCCACCCATCCGIGGGCCGCCA 960	961 GCACCACGCGGGCCCCCCATCCACATCGCGGCCACCACGTCCCTGGGACACGCCTTGTCC 1020 1111111111111111111111111111111111	1021 CCCGGTGTACGCCGAAGCAAGCACTTCCTCTACTCCTCAGGCGACAAGGAGCAGCTGCG 1080 	1081 GCCCTCCTTCCTACTCAGCTCTCTGAGGCCCAGCTGACTGGCGCTCGGAGGCTCGTGGA 1140 	1141 GACCATCTTTCTGGGTTCCAGGCCCTGGATGCCAGGGACTCCCCGCAGGTTGCCCCGCCT 1200 	1201 GCCCCAGCGCTACTGGCAAATGCGGCCCCTGTTTCTGGAGCTGCTTGGGAACCACGCGCA 1260 	1261 GTGCCCCTACGGGGTGCTCCTCAAGACGCACTGCCGCTGCGAGCTGCGGTCACCCCAGC 1320 	1321 AGCCGGTGTCTGTGCCCGGAGAAGCCCCAGGGCTCTGTGGCGGCCCCCGAGGAGGAGGA 1380 	1381 CACAGACCCCGTCGCCTGGTGCAGCTGCTCCGCCAGCAGCAGCAGCCCTGGCAGGTGTA 1440 	1441 CGGCTTCGTGCGGGCCTGCCCGGCTGGTGCCCCCAGGCCTCTGGGGCTCCAGGCA 1500 	1501 CAACGAACGCCGCTTCCTCAGGAACACCAAGAAGTTCATCTCCCTGGGGAAGCATGCCAA 1560	1561 GCTCTCGCTGCAGGAGCTGACGTGGAAGATGAGCGTGCGGGACTGCGCTTGGCTGCGCAG 1620 	1621 GAGCCCAGGGGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGATCCTGGC 1680 	1681 CAAGTTCCTGCACTGGCTGATGAGTGTGTACGTCGAGCTGCTCAGGTCTTTCTT
Oy Oy	do y	do yo	d Q	op Oy	Db Qy	do yo	g v	g y	oy o	do yo	g &	oy Oy	g &	oy Oy	oy B	g &	Oy Oy

qa o	1741	TGTCACGGAGACCACGTTTCAAAAGAACAGCTCTTTTTCTACCGGAAGAGTGTCTGGAG.1800
셤		AAGTTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGGAGCTGT 186
QY	1813	
QQ	1861	
QY	1873	GAAGCAGAGGTCAGGCATCGGGAAGCCAGGCCCGCCTGCTGACGTCCAGACTCC
qΩ	1921	GGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGGAGC 198
Qy	1933	TTCATCCCCAAGCCTGAGGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGGAGC 1
QQ	1981	TTCCGCAGAGAAAGAGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGTT 204
Oy	1993	
qa	2041	ACTACGAGGGGGGGGGGCCCCGGCCTCCTGGGCGCCTCTGTGCTGGG 210
OY	2053	STATEMENT OF THE STATEM
qa	2101	CTGGACGATATCCACAGGCCCTGGCGCACCTTCGTGCTGCGTGTGCGGGCCCAGGAC
QY	2113	CCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCTGCGGGCCCCAGGACCC 2172
qa	2161	GCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGACACATCCCCCA 222
Qy	2173	CCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGACACCATCCCCCA 22
QQ	2221	CICACGGAGGICATCGCCAGCATCATCAAACCCCAGAACACGTACTGCGTGCG
ΟŸ	2233	GGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCCAGAACACGTACTGCGTGCG
q _Q	2281	
Oy	2293	TCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCCTTCAAGAGCCA 2352
qa	2341	CGTC
οy	2353	CGTCTTCTACCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTGCAGGA 2412
QQ	2344	2344
ΟŊ	2413	GACCAGCCCGCTGAGGGATGCCGTCGTCGAGCAGAGCTCCTCCTGAATGAGGCCAG 2472
qq	2344	2344
QY	2473	173 CAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGTGCGCATCAGGGG 2532
QQ	2345	CTACGTCCAGTGCCAGGGATCCCGCAGGGCTCCATCCTCTCCACGCTGCTCTG 2398
Qy	2533	CAAGTCCTACGTCCAGTGCCAGGGGATCCCCAGGGCTCCATCCTCTCCACGCTGTTTT 2592
Ωp	2399	
Qy	2593	SCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCGGCGGGACGGGCT 265
qq	2459	TTCTTGTTGGTGACACCTCACC
Οy	2653	CTCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCACCCACC
QQ	2519	CCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGTGAACTTGCGGAA 2
Qy	2713	TICCICAGGACCTIGGICCGAGGIGICCCTGAGIAIGGCTGCGTGGTGAACTIGCGGAA 27
Ob	_	SACGAGGCCCTGGGTGCACGCCTTTTGTTCAGAT 263
QY	2773	CAGTGGTGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGCCTTTTGTT

```
CGCGAGGTGCTGCCGCTGGCCACGTTCGTGCGGCGCCCTGGGGCCCCAGGGCTGGCGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 CACGCGTCCGGGCAGCGCTGCGTCCTGCTGCGACGTGGGAAGCCCTGGCCCCGGCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCCGCGATGCCGCGCGCTCCCCGCTGCCGAGCCGTGCGCGCTGCTGCGCAGCCACTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  122 CGCGAGGTGCTGCCGCTGGCCACGTTCGTGCGGCGCCTGGGGGCCCCCAGGGCTGGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 CACGCGTCCGGGCAGCGCTGCGTGCTGCGCACGTGGGAAGCCCTGGCCCCGGCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTGCAGCGCGGGACCCGGCGGCTTTCCGCGCGCTGGTGGCCCCAGTGCCTGGTGTGCGTG
                                                                                                                                  ENCODING TELOMERASE PROTEINS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 2848;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C; 945 G; 488 T; 0 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 2848; DB 22;
Pred. No. 0.00e+00;
0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                  MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version is
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/951,733
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/873,039
FILING DATE: 11-JUN-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/751,189
FILING DATE: 15-NO-1996
ATTORNEY/AGENT INFORMATION
NAME: Oleski, Nancy A.
Sequence 13, Application US/08951733
Sequence 13, Application US/08951733
GENERAL INFORMATION:
APPLICANT: Harington, Lea A.
APPLICANT: Robinson, Murray O.
TITLE OF INVENTION: NOVEL GENES EN
NUMBER OF SEQUENCES: 44
CORRESPONDENCE ADDRESS:
ADDRESSEE: Angen Inc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE/DOCKET NUMBER: A-433B TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                          ADDRESSEE: Amgen Inc.
STREET: One Amgen Center Drive
CITY: Thousand Oaks
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               34,688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEFAX: (805) 499-8011
INFORMATION FOR SEQ ID NO: 13:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (805) 447-6504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2848 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOLECULE TYPE: CDNA
SEQUENCE 2848 BP; 437 A; 978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity 100.0%;
Matches 2848; Conservative
                                                                                                                                                                                                                                                                                                             COUNTRY: USA
ZIP: 91320-1789
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOPOLOGY:
                                                                                                                                                                                                                                                                                          STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
        \begin{smallmatrix} \mathsf{M} & \mathsf{U} & \mathsf{U}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ά
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3313 GACTCGACACCTGTCACCTACGTGCCACTCCTGGGGTCACTCAGGACAGCCCAGACGCA 3372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAGTGTCCAGCACACCTGCCGTCTTCACTTCCCCACAGGCTGGCGTCGGCTCCACCACA 3538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACTGCCCTCAGACTTCAAGACCATCCTGGACTGATGGCCACCCGCCCACAGGCCAGGCCGA 3298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2819 TCACAGCCTGTTTCTGGATTTGCAGGTGAACAGCCTCCAGACGGTGTGCACCAACATCTA
                                                                                                                                                                                                                                                                                                                                                                                                                  3733 GGGCCAGCTTTTCCTCACCAGGAGCCCGGCTTCCACTCCCCACATAGGAATAGTCCATCC
2639 GCCGGCCCACGACTACTCCCTGGTGCGCCCTGCTGCTGGATACCCGGACCCTGGAGGT
                                                     2833 GCCGGCCCACGGCCTATTCCCCTGGTGCGGCCTGCTGCTGGATACCCGGACCCTGGAGGT
                                                                                                     GCAGAGCGACTACTCCAGCTATGCCCGGACCTCCATCAGAGCCAGTCTCACCTTCAACCG
                                                                                                                                                                                                          CGGCTTCAAGGCTGGGAGGAACATGCGTCGCAAACTCTTTGGGGTCTTGCGGCTGAAGTG
                                                                                                                                                                                                                                                                                                                                       CTGCTACTCCATCCTGAAAGCCAAGAACGCAGGGATGTCGCTGGGGGGCCCAAGGGCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGGCCCTCTGCCCTCCGAGGCCGTGCAGTGGCTGTGCCCACCAAGCATTCCTGCTCAAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3253 GGGCCTCTGCCTCCGAGGCCGTGCAGTGGCTGTGCCACCAAGCATTCCTGCTCAAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GACTCGACACCGTGTCACCTACGTGCCACTCCTGGGGTCACTCAGGACAGCCCAGACGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTGAGTCGGAAGCTCCCGGGGACGACGCTGACTGCCCTGGAGGCCGCAGCCAACCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CATGICCGGCTGAAGGCTGAGTGTCCGGCTGAGGCCTGAGCGAGTGTCCAGCCAAGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3673 GAGTGTCCAGCACACCTGCCGTCTTCACTTCCCCACAGGCTGGCGCTCGGCTCCACCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3539 GGGCCAGCTTTTCCTCACCAGGAGCCCGGCTTCCACTCCCCCACATAGGAATAGTCCATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JT 11
US-08-951-733-13 STANDARD; DNA; UNC; 2848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3793 CCTGAT 3798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3599 CCAGAT 3604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       XXXXX
                                                                                                     2699
                                                                                                                                                     2893
                                                                                                                                                                                                                                                          2953
                                                                                                                                                                                                                                                                                                                                                             3013
                                                                                                                                                                                                                                                                                                                                                                                                                                                               3073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3419
                                                                                                                                                                                                          2759
                                                                                                                                                                                                                                                                                                                                                                                                               2879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
ID US
AC XX
DT
유
                                                     ð
                                                                                                                                                       ð
                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     윰
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
```

ö

Gaps

ö

9 61

		Qy	14
62 TTCGGCTTCGCGCTGCTGGACGG	CCCCCCGAGGCCTTCACCACCAGC 421	qq	15
421 GTGCGCAGCTACCTGCCCAACAGGGTGACCGACGCACACACGGTGACCGACGCACACACA	GACGCACTGCGGGGGGGGGGGGGGGGGGGGGGGGGGGGG	QY	7
81 CTGCTGCTGC	יין טפטטטי ער טפרטטר	q _Q	15
000	1111 1111 16010 54	0y	15
TTTGTGCTGG	AGCTC 60	qa —	П
542 TTTGTGCTGGTGGCTCCCAGCTGCGCCCTACCAGGTGT	SCGGCCGCCGCTGTACCAGCTC 60	ζ	Н
601 GGCGCTGCCACTCAGGCCCGGCCCCCGCCACACGCT	ניז	qa	16
602 GGCGTGCCACTCAGGCCCGGCCCCGCCACACGTAGTGGACCCCGAAGGCGTCT	1111 3GGA 66	ζ0	16
661 TGCGAACGGGCCTGGAACCATAGCGTCAGGGAGGCCC	GTCAGGGAGGCCGGGGTCCCCCTGGGCCTGCCAGCC 720	a :0	17
CTGGAACCATAGC	GGGTCCCCCTGGGCCTGCCAGCC 721	δ 8 	- ⊢
21	SCCCAAGAGGCCC 78	Z Z	18
22 CCGGGTGCGA	SCCCAAGAGGCCC 78	qa	18
/ a. Assectatestectection to the second seco	51TGGGCAGGGTCCTGGGCCCAC 840 	ζO	18
41 CCGGGCAGGA	OF COLORDON BOOK	qa	H
842 CCGGGCAGGACGCGTGGACCGAGACGTGGTTCTGTGTGTG	THITITITIES SO CAROLLE SACCE SO CACCE S	ζO	19
901 GCCGAAGAAGCCACCTCTTTGGAGGGTGCGCTCTCTCTC	SGCACGCGCCACTCCATCC 960	<u>අ</u>	-
902 GCCGAAGAAGCCACCTCTTTGGAGGGTGCGCTCTCTGGCACGCGCACCCCACCCA		٥٠ -	- 0
9	CACGTCCCTGGGAC 10	70 AO	204
GTGGGCCGCCAGCACCACGCGGGC	CACGICCCIGGGAC 102	qa	21
1021	2 2	δō	21
	504	qa	21
		QY	21
41 AGGCTCGTGGAGACCATCTTTCTGGGTTCCAGGC	ACTUCUUGUAGE 120	qa	22
42 AGGCTCGTGGAGACCATCTTTCTGGGTTCCAGGC	202	go	22
1201 TIGCCCGGCCTGCCCAGCGCTACTGGCAAATGCGGC	GCTTGGG 12	qa	22
		NO OX	22
1261 AACCACGCGCAGTGCCCCTACGGGGTGCTCCTCAAG	SAGCTGC	qq	7
	CGCTGCGAGCTGCG 133	oy.	7
1321 GTCACCCCAGCAGCCGGTGTCTGTGCCCGGGAGAAGC	CTGTGGCGGC	q a	24
	CTGTGGGGGCCCCC 138	Qy	24
1381 GAGGAGGACACAGACCCCCGTCGCTGGTGCAGC	SAGCCCC 1	qQ Dp	24
	CAGCCCC 144	ζŎ	7
		4 0	7

GTCGTGGGAGCCAGAACGTTCCGCAGAGAAAAGAGGGCCGAGCGTCTCACCTCGAGGGTG TGGCTGCGCAGGAGCCCAGGGGTTGGCTGTGTTCCGGCCGCAGAGCACCGTCTGCGTGAG TCTTTCTTTTATGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAG AGTGTCTGGAGCAAGTTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGTGCAGCTG TCCAGACTCCGCTTCATCCCCAAGCCTGACGGGCTGCGGCCGATTGTGAACATGGACTAC TACTGCGTGCGTCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCC CACCTGCAGGAGACCAGCCCGCTGAGGGATGCCGTCGTCGAGCAGCAGAGCTCCTTCGTG AATGAGGCCAGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCACCACGCCGTG CGCATCAGGGGCAAGTCCTACGTCCCAGGGGATCCGCAGGGCTCCATCCTCTCC

```
TELEPHONE: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 2176 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity 91.2%;
Matches 1924; Conservative
                                                                                                                                                                                                                         NAME/KEY: -
LOCATION: 1..2176
OTHER INFORMATION:
                                                                                                                                                                                    TOPOLOGY: linear MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   661
  ð
                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Lingner, Joachim
APPLICANT: Chapman, Karen B.
APPLICANT: Makamura, Toru
APPLICANT: Morin, Greeg B.
APPLICANT: Harley, Calvin
APPLICANT: Andrews, William H.
ITLE OF INVENTION: THERAPEUTIC METHODS
TITLE OF SEQUENCES: 335
                                                                      CGGGACGGGCTGCTCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCACC 2700
                        ACGCTGCTCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCGG 2640
                                   2582 ACGCTGCTGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCGG 2641
                                                                                              2642 CGGGACGGCTGCTCCTGCGTTTGGTGGATGATTTCTTGTTGGTGACACCTCACCTCACC 2701
                                                                                                                       CACGCGAAAACCTTCCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGTG 2760
                                                                                                                                   2702 CACGCGAAAACCTICCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGTG 2761
                                                                                                                                                                         AACTTGCGGAAGACAGTGGTGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGGCT 2820
                                                                                                                                                                                    2522 CGCATCAGGGGCAAGTCCTACGTCCAGTGCCAGGGGATCCCGCAGGGCTCCATCCTCTCC 2581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER: FLOPPY disk
COMPUTER: TBM PC Compatible
COMPUTER: TBM PC Compatible
COMPUTER: TBM PC COMPATIBLE
COMPUTER: Patentin Release #1.0, Version #1.30
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/912,951
FILING DATE: U4-AUG-1997
CLASSIFICATION NUMBER: US 08/854,050
FILING DATE: 09-MAY-1997
CLASSIFICATION DATA:
APPLICATION NUMBER: US 08/851,843
FILING DATE: 06-MAY-1997
FILING DATE: 06-MAY-1997
FILING DATE: 06-MAY-1997
FILING DATE: 06-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET: Two Embarcadero Center, 8th Floor CITY: San Francisco
                                                                                                                                                                                                                                                                                    77 12
US-08-912-951-3 STANDARD; DNA; UNC; 2176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY: United States of America ZIP: 94111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
                                                                                                                                                                                                                                     2822 ITTGTTCAGATGCCGGCCCACGCCTAT 2849
                                                                                                                                                                                                                       2821 TITGITCAGAIGCCGGCCCACGGCCIAI 2848
                                                                                                                                                                                                                                                                                                                                   Sequence 3, Application US/08912951
Sequence 3, Application US/08912951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 06-MAY-1
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend
STREET: Two Embarcad
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                           XXXXX
                                                                                                                                                                       2761
                                                                       2641
                                                                                                                       2701
                                                                                                                                              õ
                                                                                                                                                                      g
                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                à
                                                                     셤
                                                                                              ò
                                                                                                                     셤
                                                                                                                                                                                                                                               ö
```

```
2049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1750 TIATGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAGTGTCTG 1809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1930 CCGCTTCATCCCCAAGCCTGACGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGG 1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2290 GCGTCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCCTTCAAGAG 2349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 TTATGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAGTGTCTG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121 GAGCAAGTTGCAAAGCATTGGAATCAGACACACTTGAAGAGGGGTGCAGCTGCGGGGGGGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1990 AGCCAGAACGTTCCGCAGAGAAAAAGAGGCCCAAGCGTCTCACCTCGAGGGTGAAGGCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1810 GAGCAAGTIGCAAAGCAIIGGAAICAGACAGCACTIGAAGAGGGIGCAGCIGCGGGAGCI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2230 CCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCAGAACACGTACTGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGTCGGTATGCCGTGGTCCAGAAGGCCGCCCATGGGCACGTCGGCAAGGCCTTCAAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             241 CCGCTTCATCCCCAAGCCTGACGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301 AGCCAGAACGTTCCGCAGAGAAAAGAGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361 GITCAGCGTGCTCAACTACGAGCGGGGGGGGGCCCCCGGCCTCCTGGGGGCGCCTCTGTGTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 421 GGGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGTGTGCGGGCCCCAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481 CCCGCCGCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGCGCGCGTACGACACCATCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     541 CCAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCCAGAACACGTACTGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3; Indels 182;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 2176;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OTHER INFORMATION: /note= "clone 712562"
SEQUENCE 2176 BP; 432 A; 678 C; 642 G; 422 T; 2 OTHER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 1711; DB 22;
Pred. No. 0.00e+00;
APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-0cT-1996
CLASSIFICATION: 435
ATTORNEY AGENT INFORMATION:
NAME: Apple, Randolph T.
REGISTRATION NUMBER: 36,429
REFERENCE/DOCKET NUMBER: 015389-002600US
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Mismatches
```

ï

US-08-951-733-19.rnp

Page

2481 TCTTCGACGTCTTC		2541 ACGTCCAGTGCCAGG	1749 GCTACGGCGACATGC 	1809 PADDEDDEFFED PORT	2661 GTTTGGTGGATGAT	1869 GGACCCIGGICCGAC	2721 GGACCCTGGTCCGAC	1929 TGAACTTCCCTGTAG	2781 TGAACTTCCCTGTAG	1989 ACGCCCTATTCCCCT	2841 ACGGCCTATTCCCCT	2049 ACTACTCCAGCTATO	2301 ACTACICCAGCIAIC	2961 AGGCTGGGAGGAACA	2169 IGTITCIGGALTIGC	3021 TGTTTCTGGATTTGC	2229 TCCTGCTGCAGGCG1	3081 TCCTGCTGCAGGCG	2289 TTTGGAAGAACCCCA	3141 TTTGGAAGAACCCC	2349 CCATCCTGAAAGCCP	3201 CCATCCTGAAAGCC	3224	8555#JO#O#5#5#557 6386		2529 CAGGGATGTCGCTGC	3225GGATGTCGCTGG	2589 GGCTGTGCCACCAAG	3282 GGCTGTGCCACCAAC	2649 TCCTGGGGTCACTCA	3342 TCCTGGGGTCACTC	2709 TGACTGCCCTGGAGG
QY	qa .	δō.	g ò	1 6	3 8	q	Øγ	QQ	Qy	Dp	λo i	g :	3 2	a ò	qq	QY	đ	QY	đ	ΟŊ	අ දි	ğ t	S &	: E	δ. δ.	QQ	Οy	qq	Οy	đ	δy	d y
TELECOMMUNIC TELEPHONE	INE	SEQUENCE	ucieic acia NESS: single : linear		Ouery Match 41.5%; Score 1575; DB 23; Length 3346; Best Local Similarity 85.2%; Pred. No. 0.00e+00; Matches 1975; Conservative 0. Mismatches 1. Tradic 241. Cans 2.	marches 1973, Comparative C, masmarches 1, mucha 541, daps	DD 971 GGGTTGGCTGTGTCCGGCCGCAGAGCACCGTCTGGGTGAGGAGATCCTGGCCAAGTTCC 1030 Qy 1641 GGGTTGGCTGTTCCGGCCGCAGAGCACCGTCTGCGTGAGGAGAGCCCAAGTTCC 1700	1031 IGCACTGGCIGAIGAGIGIRACGICGICGAGCIGCICAGGICITTTCITTTAIGICACGG	1701 IGENETICATE AND THE TOTAL TRANSPORTED TO THE TOTAL AND THE TATAL CANGES AND THE TATAL CA	1091 AGACCACGTTTCAAAAGAACAGGCTCTTTTTTTACCGGAAGAGTGTCTGGAGCAAGTTGC	OY 1761 AGACCACGTTTCAAAAGAACAGGCTCTTTTCTACCGGAAGAGTGTCTGGAGCAAGTTGC 1820	Db 1151 AAAGCATTGGAATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGGAGCTGTCGGAAGCAG 1210	Qy 1821 AAAGCATTGGAATCAGACACTTGAAGAGGGTGCAGCTGCGGGAGCTGTCGGAAGCAG 1880	1211 AGGTCAGGCAGCATCGGGAAGCCAGCCCGCCTGCTGACGTCCAGACTCCGCTTCATC 1	1881	Db 1271 CCAAGCCTGACGGCTGCGGCCGATTGTGAACATGGACTACGTCGTGGGAGCCAGAACGT 1330	1331 HCCCARCARANAGACCCCCACACACACACACACACACACACACACACAC	2001 TCCGCAGAGAAAAGAGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTGTTCAGCGTG	Db 1391 TCAACTACGAGGGGGGGGGGCCCCGGCCTCTGGGCCTCTGTGCTGGGCCTGGACG 1450	OY 2061 TCAACTACGAGCGGCGCGCGCCCCGGCCTCTGGGCGCTCTGTGCTGGGCCTGGACG 2120	Db 1451 ATATCCACAGGCCTGGCGCACCTTCGTGCTGCGTGCGGGCCCAGGACCGGCCGG	Qy 2121 ATATCCACAGGGCCTGGCGCACTTCGTGCTGCGGGCCCAGGGCCCGCCC	Db 1511 AGCIGTACTTIGICAAGGIGGAGGGGGGGGGGGACACACCCCAGGACAGGC 1570	QY 2181 AGCIGIACITIGICAAGGIGGAIGIGACGGGCGCGTACGACACCAICCCCCAGGACAGGC 2240	1571 TCACGGAGGTCATCGCCAGCATCATCAAACCCCGGAACACGTACTGCGTGCG	2241 1CACGGAGGICAICGCCAGCAICAICAACCCCAGAACACGIACIGCGIGCG	Db 1631 CCGTGGTCCAGAAGGCCGCCCATGGGCACGTCCGCAAGGCCTTCAAGAGCCACGTC 1686 IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	1989	2361 CCTTGACAGACCTCCAGCCGTACATGCGACAGTTCGTGGCTCACCTGCAGGAGACAGCC	1686	QY 2421 CGCTGAGGGATGCCGTCGTCATCGAGCAGCTCCTCCTGAATGAGGCCAGCAGCAGGCC 2480	Db 1687CT 1688
•	•					-		_	•	_	•	_	•		•	_ `	_		_	•	_	•	_	•	- `			_			_	-

TITCITGITGGTGACACCTCACCTCACCCACGGAAACCTICCTCA GCCCGGACCTCCATCAGAGCCAGTCTCACCTTCAACCGCGGCTTCA STACAGGTTTCACGCATGTGTGCTGCAGCTCCCATTTCATCAGCAAG CTACGCTTCATGTGCCACCACGCGTGCGCATCAGGGGCAAGTCCT GGTGTCCCTGAGTATGGCTGCGTGAACTTGCGGAAGACAGTGG NGAGACGAGGCCTGGCTGGCACGGCTTTTGTTCAGATGCCGGCCC ACATTTTCCTGCGCGTCATCTCACACGGCCTCCCTCTGCTACT GGGATCCCGCAGGGCTCCATCCTCCACGCTGCTCTGCAGCCTGT GAGAACAAGCTGTTTGCGGGGGATTCGGCGGGGGGGGCTGCTGC AAGAACGCAGCCGAAGAAACATTTCTGTCGTGACTCCTGCGGTGC CCAGAGATGGAGCCACCCCGCAGACCGTCGGGTGTGGGCCAGCTTTC **AGGGGAGCTGGGCCTGTGACTCCTCAGCCTCTGTTTTCCCC** GCATTCCTGCTCAAGCTGACTCGACACCGTGTCACCTACGTGCCAC AGGACAGCCCAGACGCAGCTGAGTCGGAAGCTCCCGGGGACGACGC CAGGTGAACAGCCTCCAGACGGTGTGCACCAACATCTACAAGATCC

```
481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ద
88888888888888888888888
                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                  엄
                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        d
                                                                                                                                                                                3702 TCCCCACAGGCTGGCGCTCGGCTCCAGGGCCAGCTTTTCCTCACCAGGAGCCCGG 3761
                                                                                    3462 ACTGATGGCCACCCGCCCACAGCCGAGAGACAGACACCAGCAGCCTGTCACGCCG
                                               GGCTCTACGTCCCAGGGAGGGGGGGGCCCCACACCCAGGCCCGCACGCTGGGAGTCT
                                                                                                                              TGAGGCCTGAGCGAGTGTCCAGCCAAGGCTGAGTGTCCAGCACCACCAGCGTTTCACT
                                                                                                                                                  3642 TGAGGCCTGAGCGAGTGTCCAGCCAAGGGCTGAGTGTCCAGCACACCTGCCGTCTTCACT
                                                         3009 TCCCCACAGGCTGGCGCTCGGCTCCACCCCAGGGCCAGCTTTTCCTCACCAGGAGCCCGG
                                                                                                                                                                                                                                                                                                                                  APPLICANT: Cech, Thomas R.
APPLICANT: Lingner, Joachim
APPLICANT: Nakamura, Toru
APPLICANT: Chapman, Karen B.
APPLICANT: Morin, Gregg B.
APPLICANT: Morin, Gregg B.
APPLICANT: Andrews, William H.
TITLE OF INVENTION: Novel Telomerase
NUMBER OF SEQUENCES: 223
CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Crew LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/851,843 FILING DATE: US-MAY-1997 CLASSIFICATION: 536
                                                                                                                                                                                                                        STREET: Two Embarcadero Center, 8th Floor
CITY: San Francisco
STATE: California
                                                                                                                                                                                                              3069 CITCCACTCCCCACATAGGAATAGTCCATCCCCAGAT 3105
                                                                                                                                                                                                                                                                LT 14
US-08-851-843-100 STANDARD; DNA; UNC; 2171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/846,017
FILING DATE: 25-APR-1997
CLASSIFICATION 536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/844,419
FILING DATE: 18-APR-1997
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US 08/724,643
FILING DATE: 01-OCT-1996
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY: United States of America ZIP: 94111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                       Sequence 100, Application US/08851843
Sequence 100, Application US/08851843
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME: Apple, Randolph T. REGISTRATION NUMBER: 36,429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION:
NAME: Apple, Randolph T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 06 CLASSIFICATION:
                                                                                                                                                                                                                                                                                      XXXXXX
                                               2829
                                                                  3522
                                                                                                                              2949
                                                                                                                                                                                                                                                               셤
                                                                                                                            g
                                                                                                                                                  ò
                                                                                                                                                                     셤
                                                                                                                                                                                         ò
                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                   ò
                                                                                                          ò
                                                                  ò
```

```
1870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2111 GGCCTGGACGATGATTCCACAGGGCCTGGCGCACCTTCGTGCTGCTGCTGCGGCCCAGGAC 2170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1691 GCCAAGTTCCTGCACTGGCTGATGAGTGTGTACGTCGTCGAGCTGCTAGGTCTTTTTTT 1750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2351 CACGICICIACCIIGACAGACCICCAGCCGIACAIGCGACAGIICGIGGCICACCIGCAG 2410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5; Indels 188; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121 AGCAAGTTGCAAAGCATTGGAATCAGACAGCACTTGAAGAGGGTGCAGCTGCGGGAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAGGACAGGCTCACGGAGGTCATCGCCAGCATCATCAAACCCCCAGAACACGTACTGCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGTCGGTATGCCGTGGTCCAGAAGGCCGCC-ATGGGCACGTCCGCAAGGCCTTCAAGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTCAGCGTGCTCAACTACGAGCGGGGGGGGGCGCCCCGGCCTCCTGGGGCGCTCTGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCGGTGTGCGGGCCCAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CACGTC
                                                                                                                                                                                                                                                                                                                                                          Query Match 40.0%; Score 1520; DB 21; Length 2171; Best Local Similarity 90.8%; Pred. No. 0.00e+00; Matches 1915; Conservative 1; Mismatches 5; Indels 188;
                                                                                                                                                                                                                          NAME/KEY: CDS
LOCATION: 22..1716
COTHER INFORMATION: /note= "ECORI-NOtI insert of OTHER INFORMATION: clone 712562 encoding 63 kDa OTHER INFORMATION: telomerase protein" SEQUENCE 2171 BP; 433 A; 667 C; 641 G; 429 T; I OTHER.
REFERENCE/DOCKET NUMBER: 015389-002930US
TELECOMMUNICATION INFORMATION: ...
TELEPHONE: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 100:
SEQUENCE CHARACTERISTICS:
LEGGH: 2171 base pairs
TYPE: nucled acid
STRANDEDNESS: single
                                                                                                                                                                      TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                          FEATURE
```

δŏ	2411	GAGACCAGCCCGCTGAGGGATGCCGTCGTCATCGAGCAGAGCTCCTCCCTGAATGAGGCC 2	<u>ස</u>	1676 GCCCACACCCAGGCCT
<u>a</u> 8	665	90	QY	3550 GCCCACACCCAGGCCC
Š	7 / 77	ASCAGIGGCCICITICGAGGICITICCIACGCITICATGIGCCACCACGCCGIGCGCAICAGG	đ	1736 CTGCATGTCCGGCTGA
a à	9531	CTACGTCCAGTGCCAGGGATCCCGCAGGCTCCATCCTCCACGCTGCTC 717	QY	
<u> </u>	100	doctorations and a second control of the sec	qa	1796 GCTGAGTGTCCAGCAC
සු දු	718	TGCAGCCTGTGCTACGGCGACATGGAGAACAAGTGTTTGCGGGGATTCGGCGGACGGG 777 -	δλ	3670 GCTGAGTGTCCAGCAC
. යු	778	CIGCICCIGCGITIGGIGGAIGAITICITGITGGIGACACCICACCI	q _Q	1854 CCAGGGCCAGCTTTC
Qγ	2651		δδ	ccagggccag
qq	838		<u>අ</u>	13
οy	2711	ACCTICCTCAGGACCCTGGTCCGAGGTGTCCCTGAGTATGGCTGCGTGGTGAACTTGCGG 2770	δō	3/90 TCCCTGAT 3/98
g 2	898	AAGACAGTGGTGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGGCTTTTGTTCAG 957	RESULT ID U	JLT 15 US-08-854-050-100 STA
5		######################################	금	xxxxxx
a ò	958 2831	ATGCCGGCCACGGCCTANTCCCTGGTGCGGCCTGCTGGATACCCGGACCCTGGAG 1017	필앙앙	Sequence 100, Applica Sequence 100, Applica GENERAL INFORMATION:
đ	1018		용용	APPLICANT: Cech, APPLICANT: Lingue
٥y	2891		88	APPLICANT: Nakamu APPLICANT: Chapma
q	1078		88	APPLICANT: Morin, APPLICANT: Harley
δŽ	2951		មួន	-
qq	1138		88	NUMBER OF SEQUENCE CORRESPONDENCE ADD
٥y	3011		ខម	ADDRESSEE: Town STREET: Two Emb
QQ	1198		ខខ	CITY: San Franc STATE: Californ
ογ	3071		ខខ	COUNTRY: United ZIP: 94111
g	1258		ខខ	COMPUTER READABLE MEDIUM TYPE: F1
δ	3131		ខខ	COMPUTER: IBM P OPERATING SYSTEM
g	1316		88	SOFTWARE: Paten
οy	3191		ខូខូ	APPLICATION NUMB FILING DATE: 09
qq	1376		ខ្លួន	CLASSIFICATION: PRIOR APPLICATION
٥y	3251	GCCGGCCCTCTGCCTCCGAGGCCGTGCAGTGGCTGTGCCACCAGCATTCCTGCTCAAG 3310	88	APPLICATION NUMB FILING DATE: 06
QQ	1436		ខម	CLASSIFICATION: PRIOR APPLICATION
δ	3311	CTGACTCGACACCGTGTCACCTACGTGCCACTCGGGGTCACTCAGGACAGCCCAGACG 3370	ខូខ	APPLICATION NUMB FILING DATE: 25
g	1496	CAGCTGAGTCGGAAAGCTCCCGGGGACGACGACGACGCCTGAGGCCGCAGCCAACCCG 1555	888 	CLASSIFICATION: PRIOR APPLICATION
δλ	3371		388	FILING DATE: 18
අ	1556	GCACTGCCCTCAGACTTCAAGACCATCCTGGACTGATGGCCACCCGCCCAGCCAG	388	PRIOR APPLICATION APPLICATION NUMB
οy	3431		ខ្លួ	FILING DATE: 01
g &	1616 3491	GAGAGCAGACACCAGCAGCCTGTCACGCCGGGCTTATACGTCCCAGGGAGGG	8888	ATTORNEY/AGENT INF NAME: APPLE, R REGISTRATION NIM
٠.			3	

```
AAGACAGTGGTGAACTTCCCTGTAGAAGACGAGGCCCTGGGTGGCACGCGTTTTGTTCAG
                                                                                                                                         CTGACTCGACACCGTGTCACCTACGTGCCACTCCTGGGGTCACTCAGGACAGCCCAGACG
    GAGACCAGCCCGCTGAGGGATGCCGTCGTCATCGAGCAGAGCTCCTCCTGAATGAGGCC
                                                                        GGCAAGTCCTACGTCCAGGGCAGGGGATCCCGCAGGGCTCCATCCTCCACGCTGCTC
                                                                                                            ATGCCGGCCCACGGCCTATTCCCCTGGTGCGGCCTGCTGCTGGATACCCGGACCCTGGAG
                                                                                                                                                                                                                                                                        AGCAGTGGCCTCTTCGACGTCTTCCTACGCTTCATGTGCCCACCACGCGTGCGCATCAGG
                                                                                                   TGCAGCCTGTGCTACGGCGACATGGAGAACAAGCTGTTTGCGGGGATTCGGCGGGACGGG
                                                                                                                                                                                                                                                                                                       GTGCAGAGCGACTACTCCAGCTATGCCCGGACCTCCATCAGAGCCAGTCTCACCTTCAAC
                                                                                                                                                                                                                                                                                                                                             CGCGGCTTCAAGGCTGGGAACATGCGTCGCAAACTCTTTGGGGTCTTGCGGCTGAAG
                                                                                                                                                                                                                                                                                                                                                                                     TGTCACAGCCTGTTTCTGGATTTGCAGGTGAACAGCCTCCAGACGGTGTGCACCAACATC
                                                                                                                                                                                                                                                                                                                                                                                                                           TACAAGAICCTCCTGCTGCAGGCGTACAGGTTTCACGCATGTGTGCTGCAGCTCCCATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CATCAGCAAGTITGGAAGAACCC-ACATTITTCCTGCGCGTCATCTCTGACACGGC-TCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTCTGCTACTCCATCCTGAAAGCCAAGAACGCAGGGATGTCGCTGGGGGGCCAAGGGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGGCCCTCTGCCCTCCGAGGCCGTGCAGTGGCTGTGCCACCAAGCATTCCTGCTCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAGCTGAGTCGGAAGCTCCCGGGGACGACGCTGACTGCCCTGGAGGCCGCAGCCAACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCACTGCCCTCAGACTTCAAGACCATCCTGGACTGATGGCCACCGGCCCACAGCCAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----CTACGTCCAGTGCCAGGGATCCCGCAGGCTCCATCCTCTCCACGCTGCTC
                                                                                                                                                                                                                                          2771
    2411
                                                                                                                      2591
                                                                                2531
                                                                                                                                                             2651
                                                                                                                                                                                                    2711
                                                                                                                                                                                                                                                                                  2831
                                                                                                                                                                                                                                                                                                                         2891
                                                                                                                                                                                                                                                                                                                                             1078
                                                                                                                                                                                                                                                                                                                                                                 2951
                                                                                                                                                                                                                                                                                                                                                                                     1138
                                                                                                                                                                                                                                                                                                                                                                                                      3011
                                                                                                                                                                                                                                                                                                                                                                                                                           1198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3491
                      665
                                                            999
                                                                                                   718
                                                                                                                                          778
                                                                                                                                                                                 838
                                                                                                                                                                                                                         888
                                                                                                                                                                                                                                                                                                                                                                                                                                               3071
                    g
                                                          g
                                                                              à
                                                                                                  윱
                                                                                                                      ò
                                                                                                                                         셤
                                                                                                                                                            ò
                                                                                                                                                                                 셤
                                                                                                                                                                                                    ò
                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCAGAACGTTCCGCAGAGAAAAGGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTG 2050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2410
                                                                                                                                                                                                                                                                                                                                                                                                                                   360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         540
                                                                                                                                                                                                                                                                                                                                                    AGCAAGTIGCAAAGCATIGGAAICAGACACTIGAAGAGGGIGCAGCIGCGGGAGCTG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                        TATGTCACGGAGACCACGTTTCAAAAGAACAGGCTCTTTTTCTACCGGAAGAGTGTCTGG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        665
                                                                                                                                                                                                                                  9
                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ||||||
cacgicitatcitgacagaciccagccgiacaigcgacagiicgiggcicaccigcag
                                                                                                                                                                                                                                 GCCAGAACGTTCCGCAGAGAAAGARGGCCGAGCGTCTCACCTCGAGGGTGAAGGCACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGTCGGTATGCCGTGGTCCAGAAGGCCGCC-ATGGGCACGTCCGCAAGGCCTTCAAGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTCAGCGTGCTCAACTACGAGCGGGCGCGCGCCCCGGCCTCCTGGGCGCCTCTGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCCTGGACGATATCCACAGGGCCTGGCGCACCTTCGTGCTGCTGTGTGCGGGCCCAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCCCCCCCTGAGCTGTACTTTGTCAAGGTGGATGTGACGGGCGCGTACGACACCATCCCC
                                                                                                                                                                                                              5; Indels 188;
                                                                                                                                                                                           Length 2171;
                                                                                                                                         OTHER INFORMATION: /note= "Ecori-Noti insert of OTHER INFORMATION: clone 712562 encoding 63 kDa OTHER INFORMATION: telomerase protein" SEQUENCE 2171 BP: 433 A; 667 C; 641 G; 429 T; 1 OTHER.
                                                                                                                                                                                        Score 1520; DB 21;
Pred. No. 0.00e+00;
1; Mismatches 5;
  015389-002930US
REFERENCE/DOCKET NUMBER: 0153
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
INFORMATION FOR SEQ ID NO: 100:
SEQUENCE CHARACTERISTICS:
LENGTH: 2171 base pairs
                                                                                                 MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                        Query Match
Best Local Similarity 90.8%;
Matches 1915; Conservative
                                                                                single
                                                                                                                   NAME/KEY: CDS
LOCATION: 22..1716
OTHER INFORMATION: COTHER INFORMATION: COTHER INFORMATION: COTHER INFORMATION: t
                                                                    TYPE: nucleic acid
STRANDEDNESS: singl
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CACGIC-
                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                          1751
                                                                                                                                                                                                                                                                                                                                  1811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2291
                                                                                                                                                                                                                                                                                                                                                                        1871
                                                                                                                                                                                                                                                                                                                                                                                                              1931
                                                                                                                                                                                                                                                                                                                                                                                                                                                      1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               099
                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      665
                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                   ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
  8888888888888888888888
                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
```

2890

1077

1017

2770

957

897

1137 3010 1435

1615

1675

```
1914 TCCCCAGAT 1922
| | | | | | | | | | 3790 TCCCCTGAT 3798
                   g
                            qq
유
     ö
         Ω
                                        셤
              ò
                       οy
                                  å
```

Search completed: Fri Dec 25 08:54:06 1998 Job time : 8861 secs.